Vocal Problems and Voice Characteristics in Indian Chefs Who Use Monosodium Glutamate (MSG) in Cooking: A Comparative Study

Thejas B

Register No.: P01II21S0043

A Dissertation Submitted in Part Fulfilment of

Degree of Master of Science

(Speech-Language Pathology)

University of Mysore

ALL INDIA INSTITUTE OF SPEECH AND HEARING

MANASAGANGOTRI, MYSURU- 570006

SEPTEMBER 2023

CERTIFICATE

This is to certify that this dissertation, entitled "**Vocal Problems and Voice Characteristics in Indian Chefs who Use Monosodium Glutamate (MSG) in cooking: A Comparative Study**" is a Bonafide work submitted in part fulfilment for the degree of Master of Science (Speech Language Pathology) of the student Registration number P01II21S0043. This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

Mysuru

September, 2023

Dr. M. Pushpavathi

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Mysuru

September, 2023

Guide

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DECLARATION

This is to certify that this dissertation entitled "**Voice Problems and Voice Characteristics in Indian Chefs Who Use Monosodium Glutamate (MSG) in cooking: A Comparative Study**" is the result of my own study under the guidance of Dr. T. Jayakumar**,** Associate professor in Speech Sciences, Department of Speech-Language Sciences, All India Institute of Speech and Hearing, Mysuru and has not been submitted earlier to any other University for award of any other Diploma or Degree.

Mysuru **Registration Number:** P01II21S0043

September, 2023

ACKNOWLEDGEMENT

Dedicating my dissertation to my APPAJI, AMMA, my BROTHER, and all the chefs.

I would like to express my heartfelt thanks to all of them who made this work successful. I thank the supreme power of the universe for showering me with strength, blessing me always to progress in life and showing me the right path in all the works I do. thanking God for keep fulfilling my endless wishes.

I take this opportunity to thank my ***Dad (Basavaraju R****) for all his sacrifices he has made in life to raise me and my brother, and for all his efforts and unexpressed love and care towards us, for being my hero and role model. Thank you, Appaji, for being there always for me.*

I thank my ***mother (Veena)*** *for all her unconditional love, care and concern towards me and my brother, which can be thanked enough. thanks for raising us in a right way. Thank you, Maa. I owe my life to you both, I am proud to be your son and make you both proud and always want to be your son in all the universe and life.*

I thank my little brother ***Yashu****, for being the best brother in the world, and for all his support and keeping the whole family happy and lively with his cool personality.*

I thank my ***mama (Raju****) and his* ***family*** *supporting my thoughts and always being there for my family. And* ***Chef Nayaz*** *for helping me with his contacts,* ***Murthy*** *sir for helping me with data collection.*

I am extremely grateful to my guide ***Dr. T Jayakumar*** *for being the most down to earth personality, for all his suggestions, guidance, and help to carry out this dissertation and for not pressurizing, not keeping deadlines, never seen such a humble and pure soul, thank you, sir, for being what you are and be the same humble and calm always.*

I acknowledge my gratitude to the director ***Dr. M Pushpavathi*** *for providing opportunity to carry out this dissertation.*

I convey my sincere thanks to ***Gopi Kishore*** *sir for making me like "voice'' and proceed further, thanks to his teaching.*

I thank ***Dr R Rajasudhakar*** *sir for being always approachable and for helping me with this dissertation, I Thank* ***Reuben sir*** *helping me in validation. My sincere thanks to* ***Sreenivas sir*** *for teaching me and helping me out with statistical analysis and treating me as friend and to his patience.*

*I thank all the JRFs****, Jesnu*** *sir for being so helpful and being very nice to everybody who approaches him, thank you sir for helping me a lot,* ***Supreetha Akka****,* ***Ranjitha Akka, Vasu,*** *for their support and guidance.*

I thank ***Sumanth*** *for his constant support and for helping me throughout this dissertation, without him, my dissertation would not be complete. Thank you,* ***Somu,*** *I am very lucky to have your friendship. I thank* ***Madhu*** *for his input and for his helping nature.*

I thank ***Yasin,*** *my brother and friend, for helping me.*

I thank ***Arun raj sir*** *for supporting me, guiding me in life and taking care of me always.*

I thank ***Jayashree Mam*** *for being very helpful to me from the process of admission to Msc till now. I thank* ***Gopi Sankar, sir,*** *for sharing his clinical experience and making me to like this subject more.*

I thank Yashoda mam for her support and suggestions. I thank ***Sreeraj sir*** *(****Motivation guru****) and* ***Prashanth Prabhu*** *sir for making AIISH and NSS days memorable in life. I thank* ***Sharath sir*** *and* ***Jithin raj sir****,* ***Vikas sir,*** *and* ***Vivek sir*** *for always being nice to me. I thank* ***Abhishek sir*** *for his inputs and support.*

*I thank **Mahesh sir** and **Amulya mam** for understanding the mindset of students and helping us.*

*I thank **Ravi sir** and R**aju sir** for their support and for making the AIISH journey happy.*

I am very blessed to have a lot of friends who are the one who brings colours to life and make life beautiful

*I thank my **Bisleri Boys** for helping me in all possible ways.*

*I thank my **childhood friends (Hari, Madhu, Hemanth, Sachin)** and **Jnv friends (Gouthu, Manu, suri, chethu, Raki, Sunil, Sujan and Yashwanth)** for their support. and friends I got in AIISH (**Gouthu** again for helping me and being there for me always, **Sumanth, Yashas, and Pramod, Shahil and Mithul, Varsha ,Rohini, Manasa , Bhoomika , Likitha , Kasturi , Supriya, Sneha ,Reshu Swathi, Swalih, Anirbu, Mithul, Nishanth, Ankit, Abhishek and Mohit**). Special thanks to **Subbi (Sushmi)** and **Kulli (Rashmi)** for understanding me.*

*Thanks to **Rakshith** and his family, and thanks to **Ankita** and **Ashwath** for being there and I thank **Neha Yadav** for making AIISH days elegant.*

*I thank **Ridha Fahmeen (Padipist)** for being my friend and for all her suggestions, endless walks and discussions about life, and for being there for life. Thanks to **Shafiq** uncle (her dad) for having a nice personality*

*I thank **JO** for always being there with me in all my ups and downs, caring for me so much, helping me always and understanding me so well, for all those wonderful memories for life and making my journey so beautiful and happy and for your motivation and emotional support, thank you **jo** for everything (**thanks to your family)**.*

*I thank **Nasira** and **her Family**, **Joyline**, and **Sruthi,** for giving me a comfortable zone of friendship. Thanks to my dissertation partner **Shiga** for helping when needed.*

I thank my Tamil gang, ***Ashok, Yamini, Mohanlal, Mani*** *and* ***Kabali (vinayagar****)and* ***Sridhar.***

Thanks to ***Suraj*** *and* ***Vasuki*** *for being crazy and to all those fun days.*

thanks to ***Thiru*** *and* ***Ranju*** *for their inputs.*

Special thanks to ***Nithya*** *and* ***Dhivagar*** *for being very nice friends of mine*

Special thanks to ***Juniya Joby****, some people's presence just makes everything fine, you are one such person to me, thank you for making me feel better whenever you are around and helping me with this work and for creating beautiful memories in this phase of life.*

*I thank my juniors (****Neha, Nuha , Persis , Krishna, Supraja, Aslin, Hemanth, Chandu, Rashmi, Shashank, Chethan, Mani, Sujeet, Manjunath, Dinesh and Manja-Sreeni****)*

I thank ***Devarajanna*** *,* ***Nagendra anna*** *for his support and care. I thank* ***Mahadevanna,*** *and all the* ***executive chefs*** *for helping with the data collection*

I convey my gratitude to all my classmates, from ***Amorites*** *to* ***Resonators*** *and Special thanks to a lot of people who are kind to others for no reason.*

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CHAPTER 1

INTRODUCTION

The voice is a fundamental human communication tool that serves various essential purposes beyond simply conveying words. It plays a crucial role in communication by enhancing interactions, expressing emotions, building identity, conveying meaning and enriching and fostering connections.

A normal voice refers to the standard and healthy vocal characteristics exhibited during speech. It encompasses various aspects of vocal production that contribute to effective communication. While there is a wide range of natural variations in voice quality, a normal voice generally exhibits appropriate pitch, adequate loudness, and meaningful inflections in speech (Boone et al., 2014).

A normal voice should be pleasant to listen to with the right amount of nasal and oral resonance, loudness, and habitual pitch level for the person's age, size, and sex (Wilson,1972). Any deviations/disturbances to these parameters may affect the normal quality of voice, resulting in abnormal voice or a voice disorder.

The abnormal/disordered voice may comprise hoarse, harsh, or breathy voice quality with abnormal loudness, inappropriate pitch for age, size, or gender, and unsuitable stress or intonation patterns (Wilson, 1972).

An individual’s voice is an essential feature that has multiple impacts on personal life, identity, health, social, career and professional life. An individual involved in professional voice use is more prone to voice issues (Verdolini & Raming, 2001). Often Professional Voice Users (PVU) extend their voice beyond the limit, which could lead to vocal trauma with reduced laryngeal functions.

Although the voice is not used much in the work environment, some of the voice-related issues are also seen in Non-Professional Voice Users and general populations. Studies have reported that people working as labourers, clerks, factory workers, librarians, sanitary workers, and security guards (Koufman & Isaacson, 1991; Sheyona & Devadas, 2022) are more prone to voice issues.

Roy et al. (1995) conducted an extensive epidemiological study to estimate the prevalence of risk factors for voice disorders in the general population. Both the working and non-working individuals were surveyed and reported 29% lifetime prevalence and 6.6% point prevalence of voice disorder. In addition, they identified that women were at risk of developing voice issues, and the factors causing voice issues are because of vocal demand, pattern of voice usage, oesophageal reflexes, frequent cold/ sinus infections and chemical exposures.

Vocal health in working conditions is a serious issue to be concerned about regardless of whether one uses their voice professionally or not because voice issues can induce stress that can affect psychological health, which can result in serious health issues that have an impact on one's financial situation (Dietrich et al., 2008).

A prospective clinical study by Spina et al. (2009) examined the overall voice quality of both professional and non-professional voice users concerning voice issues. The study concluded that the voice disorders severely impacted the quality of life of all the patients who participated.

Individuals involved in highly demanded voice use in the respective occupation are likely to experience functional and biological laryngeal issues. It has been observed that the individuals involved in teaching, singing, broadcasting, sales representing, and

drama-act are more susceptible to developing voice problems (Kosztył, 2004). Apart from the vocal demand, several research studies have revealed that physical workplace factors like noise, reverberation duration, pollution, chemicals, and climatic changes also influence the occurrence of voice disorders among occupational voice users (Cutiva et al., 2015).

The potential occupational factors most often reported include excessive use of one's voice at work (30%), much dust at work (26%), exposure to potent cleaning chemicals and fumes (including paints), fungus (13%), and humidity (6%). The most common complaints among men (47%) were their exposure to too much dust, and fumes, at work (Villanueva, 2011). A study by Przysiezny & Prezysiezny (2015) also reported similar causes, such as individuals in contact with chemicals, solvents, metal fumes; poisonous gases, dust, and smoke are at risk of developing voice issues. A significant concern is required regarding chemicals and environmental factors, as the general population is commonly exposed to various work setups (Williams & Carding, 2015).

A study by Darshitha and Rajasudhakar (2022) examined the effect of chemical exposure on voice through acoustic and perceptual voice symptoms and discomfort scales. For this, eighteen male participants, aged 20-40 years, employed in the paint production industry and exposed to chemicals like polyurethanes and isocyanides; and age-matched eighteen male participants who were not exposed to chemicals as control group were considered participants of the study. The results of the study revealed that the participants exposed to chemicals had higher vocal tract discomfort and symptoms such as dryness, burning, tickling, irritation, tightness, and pain sensations in the throat compared to the control group. Similarly, the acoustic parameters such as fundamental

frequency, jitter, and shimmer were majorly affected in the chemical exposure group, highlighting a confirmed chemical effect on abnormal vocal performance.

Kasbi et al. (2022) carried out a survey on voice issues who are exposed to cosmetic chemicals regularly. 293 female participants who are involved in hairdressers and other jobs were considered as participants. The survey examined the demographic information, voice issues and symptoms, laryngitis, working circumstances, and working features of each participant. Results showed hairdresser's group had a higher prevalence (33.33%) of self-reported vocal issues than the other groups, making them more vulnerable to acquiring voice disorders. Cough, hoarseness, and dryness of the vocal tract were the most prevalent symptoms in the group of hairdressers.

The above studies show that individuals directly or indirectly exposed to chemical substances have a chance of developing voice and vocal health-related issues. Similar to these occupations, cooking is also involved in various usages of chemical substances for the betterment of taste in food preparation.

Cooking is an applied science involving adequate ingredients and the ability to fry them for the requisite period, using various suitable blends of spices to achieve the desired flavour and taste (Joseph, 2016). In most cooking styles, stir-frying and deep frying in oil at a very high temperature are commonly involved with using various food ingredients. One of the studies by Lee et al. (2010) reported that individuals exposed to Chinese cuisine oil vapours while cooking had a risk of developing lung cancer. The International Agency for Research on Cancer (IARC, 2010) also highlighted that emissions from high-temperature frying are probably carcinogenic to humans, and precautions are needed for these conditions.

Some of the food additives used by the majority of chefs in commercial foods are Sulphites, Sodium Nitrites, Aspartame (Adverse Reaction to Food Additives, 2023) and Monosodium Glutamate (MSG) (Niaz et al., 2018). Exposure to Sulphites may severely affect breathing and cause diarrhoea and other allergic reactions (Asthma and Allergic Foundation of America, n.d.). Nitrites salts are frequently used in food as preservatives and can also result in allergic reactions, nausea, and respiratory issues (Witkowski et al., 2022).

MSG is the most commonly used preservative that imparts a distinct aroma to processed foods known as ‘Umami’ and ‘Savoury’ as flavour sensations in Japanese (Xiong et al., 2009). MSG is also called ‘Chinese Salt’ in most countries and is linked with a variety of health issues such as obesity, Chinese restaurant syndrome, neurotoxic effects and negative impact on the reproductive system (Niaz et al., 2018), headache and migraine (Baad-Hansen et al., 2010), and kidney injury (Sharma, 2015).

Pacor et al. (2004) carried out a double-blind, placebo-controlled study of 226 persistent rhinitis patients aged 12 to 60 years to check whether ingestion of MSG or consensual reduction of nasal peak inspiratory flow may cause sneezing and rhinorrhoea and nasal blockage and nasal itching. A food additive-rich diet was given for two weeks to the participants, and later, various challenges were administered in double-blind, placebo-controlled manner. The results showed that 20 challenges with Monosodium Benzoate (MSB) caused both sneezing and rhinorrhoea, nasal blockage, and itching rhinitis symptoms with a reduction of nasal peak inspiratory flow. While 45 challenges caused rhinitis symptoms such as nasal blockage and itching without a reduction of nasal peak inspiratory flow, 8 with monosodium glutamate, 7 with erythrosine, 19 with monosodium benzoate, three with p-hydroxybenzoate, and wo

with tartrazine, respectively. With this, it was concluded that MSG can be an additive factor in causing rhinitis. Chronic and allergic rhinitis may affect voice quality (Develioglu et al., 2013) and could result in serious voice issues.

MSG sensitivity is widely known as Chinese restaurant syndrome, which causes numbness, weakness, and heart palpitations (Kwok, 1968; Appaiah, 2010), asthma, diabetes, and allergic rhinitis (Williams & Woessner, 2009; Shi et al., 2013;). The adverse effects of consuming MSG may be cumulative, where the substance can result in toxins over time. This cumulative toxicity is comparable to the Acharya Sushruta idea of Dushi Visha in Ayurveda, which takes time to manifest and only manifests when the conditions are favourable and do not induce symptoms immediately but may affect the body and mind functions. Using such chemicals in regular cooking and inhalation may also indirectly change the acoustic and aerodynamic features and cause voice changes (Somnath & Chalakh, 2019).

These studies highlight that the person exposed to these chemicals can impact respiratory functions, development of asthma, allergic rhinitis, gastritis, upper respiratory tract infection (URTI), and other respiratory disorders. Chefs are the ones who are regularly involved in cooking for an extended duration and are exposed to chemical fumes in their occupation.

A chef is an individual who can prepare new recipes and uses cooking techniques to maintain the proper proportions of ingredients to bring out the best flavour and taste. Chefs use their understanding of what is occurring in our food at the molecular level to develop fresh, delectable foods and cooking methods. They are often exposed to cooking fumes directly with increased environmental temperature for an extended duration to fulfil their job. Even though the chefs are professionally

recognised in the food industry, they may be more prone to develop health issues due to these factors.

Chefs are more likely to acquire gastritis since they have short meal times; they are also the most well-known working group to be exposed to occupational stress factors (Cerasa et al., 2020) and severe respiratory issues due to the consumption of the fumes of food additives like tasting powder, flavour enhancer, food dyes and preservatives, spice powders, artificial food colours that they use in cooking regularly.

A case study by Pauly (2017) studied the effect of cooking in voice on a chef working in a bar for two years. Results revealed that the chef had an abnormal change in voice gradually; hoarseness and asthenic voice quality were associated with dysphagia, and later was diagnosed as Amyotrophic Lateral Sclerosis (ALS). This shows that chefs are the most neglected populations in health and clinical welfare, who work under such environmental conditions for many years and are susceptible to developing various respiratory, pharyngo-laryngeal, neurological, and health-related issues. There are minimal studies that have examined the effect of these factors on the health conditions of chefs that need to be explored.

Need for the study

Many questionnaires for perceptual and acoustical analyses have been carried out widely to investigate the vocal features of professional voice users. Studies have also shown that non-professional voice users are equally prone to voice disorders but limited to specific numbers of research. Since voice issues have been demonstrated to reduce the quality of life significantly, there is a need to research non-professional voice users to raise public knowledge towards the significance of voice in one's life, risk

factors for voice issues, self-prevention techniques, and when to seek medical professionals' help (Sheyona & Devadas, 2022). In addition, non-professional voice users can be considered under various occupational settings with respective causative factors for voice issues, especially people who work in contact with chemicals, solvents, metal fumes, poisonous gases, dust, and smoke are at risk of developing voice issues (Przysiezny & Prezysiezny, 2015) that need to be explored.

As the food industry proliferates, chefs may be more prominently exposed to various chemicals as they use a variety of food additives in cooking and are directly exposed to cooking fumes. These chemicals and cooking fumes may affect respiration and voice, but there is dearth of literature on the impact of chemical substances on chef's vocal health. In order to understand the severity of the effect, there is a high potential need to examine and explore the vocal problems and voice characteristics in chefs, presently considered a growing occupation.

Aim

The current study aims to investigate the vocal problems and voice characteristics of Indian chefs who use MSG in cooking.

Objectives of the study

1. To adapt a self-reported vocal problem questionnaire focused on Indian chefs.
2. To estimate the vocal problems of Indian chefs through an adapted questionnaire.
3. To measure the voice parameters of Indian chefs through the MDVP (Multi-Dimensional Voice Programme) voice analysis tool.

4. To estimate the voice parameters of Indian chefs perceptually using CAPE-V (Consensus Auditory-Perceptual Evaluation of Voice quality).

CHAPTER 2

METHOD

2.1 Study design:

The current study used survey research and standard group comparison research design.

2.2 Participants:

A total of 50 chefs aged 20 to 50 years, participated in this study. Participants were divided into two groups. Group I consisted of 30 chefs with a mean age range of 26 to 46 years. Those participants have experience of more than five years of exposure to cooking for a minimum of 5 hours a day. All the Group I participants use MSG in cooking. Group II consisted of 20 chefs with a mean age range of 27 to 45 years. Those participants have experience of more than five years and are exposed to cooking for a minimum of 5 hours a day. All the Group II participants use minimal or no usage of MSG in cooking. Chefs were recruited from the Mysuru region, Karnataka. All the participants were male in gender.

2.2.1 Exclusion criteria

- Participants who were chronic smokers or tobacco users were excluded from the study.
- Participants with present respiratory tract infections were not considered for the study.
- Participants with neurological deficits or speech problems were excluded from the study.

- Chefs who work in any other part-time job that involves vocal efforts and a smoking environment were not considered for the study.
- Participants having any history of voice disorders before the chef occupation were excluded from the study.

2.3 Ethical consideration

Before conducting the study, informed consent was obtained from each participant.

2.4 Procedure

Phase 1: Development of the questionnaire and its administration

Development of the questionnaire

A questionnaire was developed seeking information on various factors such as cooking information, preservatives used in cooking, vocal care, vocal difficulties, non-vocal habits and medical history. The questions were developed based on the available literature and with required adaptation. The questionnaire was developed in English. Further questionnaire was validated by three speech-language pathologists (SLPs) and two chefs. Based on the input from SLPs and chefs. The finalised questionnaire is developed in English. Later, the questionnaire was translated into Kannada with the help of the SLP and a Kannada literature person.

Administration of the questionnaire and analysis

The validated questionnaire included seven sections: Section I - General Information; Section II - Workplace/Feature information; Section III - Lifestyle

information; Section IV -Voice care information; section V - Vocal habits information; section VI- Vocal symptoms; section VII- Medical/ Surgical information.

The validated questionnaire was administered to Group I and Group II participants of the current study. The researcher approached them in person and briefed them about the study procedure. Following that, the validated questionnaire was provided to each participant, and they were instructed to complete the questionnaire. Assistance and clarification were provided by the researcher whenever needed. The responses elicited were subjected to descriptive analysis.

Phase 2: Obtaining voice samples from the participants and their analysis

Recording of voice samples from the participants

Voice samples from all the participants were obtained in a quiet room using a digital voice recorder (Olympus LS-100). The recording was carried out in 44100Hz sampling frequency and 16 quantisation bits. The microphone was placed 10 cm near the participant's mouth to avoid background noise. The following voice samples from the participants of groups I and II were obtained.

1. *Phonation of Sustained vowel.* Participants were asked to take a deep breath and to sustain phonation of the vowel [a], individually at their comfortable pitch and loudness for as long as possible. Each participant was asked to perform three trials of sustained vowel phonation task with an interval of one minute between each trial.
2. *Standard Reading Passage in Kannada.* Participants were instructed to read the Kannada standard reading passage "Bengaluru" (Shashidhar, 1984) fluently without errors.

3. *Standardized CAPE-V sentences in Kannada.* Participants were instructed to read the six standardised CAPE-V Kannada sentences fluently without errors. (Gunjawate et al., 2020)

The stimuli and the tasks were standard for both groups of participants. The recorded voice samples were saved in .wav format and used for further analysis.

Analysis of voice samples

The obtained voice samples were subjected to the following analysis.

1. *Phonation of sustained vowel* the phonation of sustained vowels /a/, was determined from the best of the three trials.
2. *Multi-dimensional Voice Parameters.* Each recorded sample of sustained vowel [a] was extracted to Multi-Dimensional Voice Programme, Computerized Speech Lab (CSL 4500) software. A stable portion of a minimum 3 seconds [a] phonation sample of all the participants was subjected individually to analyse the multi-dimensional voice parameters.
3. *Auditory Perceptual Analysis.* Each participant's CAPE-V sentences, vowel [a] phonation sample, and standard reading 'Bangalore passage' in Kannada were combined individually to form a single audio sample and used for auditory-perceptual evaluation. The audio samples of each participant were provided to five qualified SLPs for perceptual rating and were blindfolded to the details of the participants. The SLPs were asked to rate the overall audio samples using CAPE-V, a 10mm visual analogue rating scale. Ten per cent of the audio samples were used for test re-test reliability of the perceptual evaluation.

2.5 Statistical Analysis

The obtained acoustics, auditory perceptual measurements and questionnaire data of both groups of participants were tabulated and subjected to appropriate statistical analysis using the IBM Statistical Package tool for the Social Sciences (SPSS) software version 26. The research variables of the present study were as follows:

Dependent variables: Multi-dimensional voice parameters, auditory perceptual measures and responses to the questionnaire.

Independent variables: Participants of Group I and II. Descriptive statistics was used to obtain the frequency count and percentage from the questionnaire data. Independent t-test and Mann- Whitney test statistical was used for MDVP and CAPE V parameter. Pearson and Spearman correlation test was used to correlate CAPE-V and MDVP parameters.

CHAPTER III

RESULTS

The current study uses questionnaires, acoustic, and perceptual analysis to investigate vocal problems and voice characteristics of Indian chefs who use MSG in cooking. The study included two groups of participants Group I – chefs who use MSG in cooking and Group II – chefs who won't use MSG in cooking). Phonation and reading samples were recorded and analysed to obtain acoustic, and perceptual parameters in both groups. In addition, questionnaire was used to examine the self-perceptual measures of vocal characteristics.

The following statistical analysis was carried out in the study;

1. The descriptive statistics were applied to the responses obtained from the questionnaire using the frequency distribution.
2. A test of normality was carried out for acoustic and auditory perceptual measures in order to decide on appropriate inferential statistic tests for each parameter.
3. The parametric, independent t-test and Non-parametric, The Mann- Whitney test statistical analysis for MDVP and CAPE V parameters.
4. Spearman correlation test was used for test-retest reliability of MDVP parameters and Pearson correlation was used for test-retest reliability of the CAPE-V parameter.
5. Cronbach's alpha was used for inter-rater reliability of CAPE-V parameters.
6. Pearson and Spearman correlation coefficient was used for MDVP and CAPE-V correlation

3.1 Development and validation of questionnaire

Based on the requirements of the needs the questionnaire was formulated and was content validated by three SLPs and two professional chefs. The reviewers provided few suggestions to implement information on work environment as could be significant factor for better outcome measures. After implementing the suggestions and modifications provided by reviewers the finalized questionnaire was developed. The finalized questionnaire consists of seven sections such as (i) General information (ii) Workplace/Feature (iii) lifestyle (iv) Voice care (v) Vocal habits (vi) Vocal symptoms and (vii) Medical/Surgical information that elicit the general health and vocal characteristics.

3.2 Frequency of vocal problem elicited from the questionnaire

The questionnaire was administered to both groups, and the vocal and health characteristics responses were obtained from each participant. The frequencies of responses were tabulated, and the descriptive statistical analysis was carried out.

The frequency distribution and the percentage count of vocal problem elicited from the questionnaire are displayed from Table 1.1 to 1.8.

Section I: General information

Table 1.1: Frequency counts and percentages of general information

Q.No.	Question	Response	Frequency (out of 50)	Percentage (%)
Q1	At what age did you start working as a chef?	18- 25	44	88
		26- 30	6	12
		31- 40	0	0
		41- 50	0	0
Q2	How many years of total working experience do you have as a chef?	<5 years	0	0
		5-10 years	23	46

		10-15 years	12	24
		>15 years	15	30
Q3	What is the maximum number of hours you work as a chef?	<4 hours	0	0
		4-6 hours	0	0
		6- 8 hours	11	22
		>8 hours	39	78
Q4	What is the minimum number of hours you work as a chef?	<4 hours	0	0
		4-6 hours	0	0
		6- 8 hours	11	22
		>8 hours	39	78
Q5	Do you have a job, in addition to cooking, that requires extensive voice use?	Yes	0	0
		No	50	100
Q6	Do you use mask while cooking?	Yes	0	0
		No	50	100
Q7	Do you use Mono Sodium Glutamate /Chinese salt /Ajinomoto in cooking?	Yes	30	60
		No	20	40
Q9	Do you have a history of ear infections or hearing problems?	Yes	1	2
		No	49	98
Q10	Do you suffer from constant upper respiratory infections?	Yes	0	0
		No	50	100
Q11	What types of food do you cook?	North Indian	11	22.0
		South Indian	16	32.0
		Chinese	10	20.0
		Any other	13	26.0

Table 1.1 shows the frequency counts and percentages of general information. The responses from the general demographic information shows that 88% (N = 44) of participants were aged between 18 - 25 years, and 12% (N = 6) were within 26 - 30 years of the adult population. All the participants had more than five years of experience: 05 - 10 years (N = 23, 46%), 10 - 15 years (N = 12, 25%) and >15 years (N = 15, 30%). A maximum of 78% (N = 39) of the participants were involved in cooking for more than 8 hours, and 22% (N = 11) of participants for 6 - 8 hours. None of the participants (N = 50, 100%) were involved in any other job apart from cooking and had no history of hearing and respiratory problems. All the participants (N = 50, 100%) reported not using a mask while cooking and in the case of use of MSG, 60% of the participants (N = 30) are using it as a food ingredient in cooking. Majority of the

participants were involved in cooking South Indian dishes (N = 16, 32%), following to other dishes (N = 13, 26%), and limited on North Indian dishes (N = 11, 22%) and on Chinese dishes (N = 10, 20%).

Section II: Workplace/ work feature information

Table 1.2: Frequency counts and percentages of workplace/feature information.

Q.No.	Question	Response	Frequency (out of 50)	Percentage %
Q12	Do you involve in some behaviours such as excessive talking, speaking loudly, yelling, and excessive throat clearing during working time?	Yes	17	34
		No	33	66
Q13	Do you work/worked in a noisy environment	Yes	29	58
		No	21	42
	If yes, How noisy is the working environment?	Soft	15	30
		Moderate	26	52
		Loud	9	18
		Very loud	0	0
Q14	Is your working place dusty/smoky?	Never	8	16
		Rare	29	58
		Sometimes	6	12
		Often	6	12
		Always	1	2
Q15	Are you exposed to extreme heat while cooking?	Never	2	4
		Rare	9	18
		Sometimes	18	36
		Often	10	20
		Always	11	22
Q16	Do you work based on shifts or fixed timing?	Yes	2	4
		No	48	96
Q17	Do you work overtime?	Yes	23	46
		No	27	54
Q18	What is your workplace temperature?	Very hot	20	40
		Hot	17	34
		Neutral	12	24
		Cold	0	0
		Very cold	1	2
Q19	Do you feel tired while working?	Yes	6	12
		No	44	88

Table 1.2 shows the frequency counts and percentages of workplace/feature

information. From this section responses it was observed that only 34% of participants (N = 17) reported of excessive talking, speaking loudly, yelling, and excessive throat clearing during working time. Most of the participants (N = 29, 58%) reported that they work in moderate (N = 26) and loud (N = 9) level of noisy environment. Majority of the participants reported that they are exposed rarely to dusty/ smoky environment (N = 29, 58%), sometimes for extreme heat while cooking (N = 18, 36%) and under very hot workplace temperature (N = 20, 40%). With respect to work timings 48% of the participants (N = 48) work on fixed based with overtime works (N = 23, 46%) and only 12% of participants (N = 6) reported of tiredness on working.

Section III: Lifestyle information

Table 1.3: Frequency counts and percentages of lifestyle information

Q.No.	Question	Response	Frequency (out of 50)	Percentage
Q20	Do you consume the following foods listed below? Spicy or oily food	Never	3	6
		Rare	9	18
		Sometimes	8	16
		Often	15	30
		Always	15	30
	Extreme hot or cold items	Never	10	20
		Rare	22	44
		Sometimes	12	24
		Often	4	8
		Always	2	4
	Coffee, tea, cola, or other caffeine-containing drinks	Never	4	8
		Rare	4	8
		Sometimes	7	14
		Often	9	18
		Always	26	52
	Nonvegetarian food	Never	6	12
		Rare	3	6
		Sometimes	19	38
		Often	11	22
		Always	11	22

Q21	Do you have a habit of consuming chewing gum/ pan/gutka/beeda?	Never	49	98
		Rare	1	2
		Sometimes	0	0
		Often	0	0
		Always	0	0
Q22	How many glasses of water do you drink per day	2-4 glasses	1	2
		4-8 glasses	0	0
		8-10 glasses	4	8
		>10 glasses	45	90
Q23	Do you avoid any specific food items?	Yes	6	12
		No	44	88
Q24	Are you allergic to any specific food item?	Yes	7	14
		No	43	86
Q26	How many hours per day do you get to sleep?	3-4 hours	0	0
		4-5 hours	4	8
		5-6 hours	9	18
		>6 hours	37	74
Q27	Do you perform workouts/exercise like walking or yoga?	Never	39	78
		Rare	3	6
		Sometimes	3	6
		Often	4	8
		Always	1	2
Q28	Do you feel personal or professional stress?	Never	27	54
		Rare	11	22
		Sometimes	3	6
		Often	6	12
		Always	3	6

Table 1.3 shows the frequency counts and percentages of lifestyle information. The lifestyle information reported an equal 30% of each participant (N = 15) are involved in consuming spicy or oily food often and always respectively. 44% of participants (N = 22) are involved in taking extreme hot or cold items, 38% of participants (N = 19) involved in consumption of non-vegetarian foods and majority of them (N = 26, 52%) are involved in taking coffee, tea, cola, or other caffeine-containing drinks regularly. Most of them (N = 45, 90%) reported that they are involved in drinking more than 10 glasses of water per day and 98% (N = 49) are not having habit of consuming chewing gum/ pan/gutka/beeda. Limited of participants are having a habit of avoiding specific foods (N = 6, 12%) and are allergic to certain food items (N= 7,

14%). 74% of participants (N = 37) reported of sleeping more than 6 hours and 78% of them (N = 39) have not involved in any physical workouts/ exercises. Among 50 participants 23 of them reported certain levels of professional stress.

Section IV: Voice care information

Table 1.4: Frequency counts and percentages of voice care information

Q.No.	Question	Response	Frequency (out of 50)	Percentage %
Q29	How many hours per day do you use your voice?	2 hours	0	0
		2-4 hours	8	16
		4-6 hours	29	58
		>6 hours	13	26
Q30	Do you think your profession requires extensive voice use?	Yes	13	26
		No	37	74
Q31	Do you feel concerned when you notice a change in your voice?	Yes	6	12
		No	44	88
Q34	Do you use any quick home remedies to improve your voice?	Never	35	70
		Rare	12	24
		Sometimes	3	6
		Often	0	0
		Always	0	0
Q36	Are you aware of any voice-related problems?	Yes	1	2
		No	49	98
Q37	Do you think you have any voice problems?	Yes	1	2
		No	49	98

Table 1.4 shows the frequency counts and percentages of voice care information. Based on the information on voice care, it was noted that 58% of participants (N = 29) use their voice for 4-6 hours per day, whereas 26% use > 6 hours (N = 13) and 98% of them (N = 49) are not aware of any voice disorders. Hardly 12% of participants (N = 6) are concerned about their change in voice and 35% of them (N = 35) never use any quick home remedies to improve the voice. Almost everyone (N = 49, 98%) reported of no voice problems and majority (N = 13, 26%) reported of not thinking to use voice in profession extensively.

Section V: Vocal habits information

Table 1.5: Frequency counts and percentages of vocal habits information

Q.No.	Question	Response	Frequency (out of 50)	Percentage %
Q42	Do you indulge in long, continuous chats?	Never	3	6
		Rare	27	54
		Sometimes	8	16
		Often	7	14
		Always	5	10
Q43	Do you indulge in loud talking?	Never	3	6
		Rare	27	54
		Sometimes	10	20
		Often	8	16
		Always	2	4
Q44	Do you indulge in screaming or shouting?	Never	9	18
		Rare	26	52
		Sometimes	8	16
		Often	7	14
		Always	0	0
Q45	Do you clear your throat?	Never	23	46
		Rare	14	28
		Sometimes	7	14
		Often	1	2
		Always	5	10
Q46	Do you believe that you are using your voice unnecessarily?	Never	30	60
		Rare	13	26
		Sometimes	5	10
		Often	1	2
		Always	1	2
Q47	Do you have habit of singing loudly?	Never	26	52
		Rare	16	32
		Sometimes	2	4
		Often	5	10
		Always	1	2

Table 1.5 shows the frequency counts and percentages of Vocal habits information. 54% of the participants (N = 27) are involved in continuously chatting and talking loudly. 52% of them are involved in screaming/ shouting rarely (N = 26) and more than quarter percentage of participants are rarely involved in throat clearing (N =14, 28%),

use of voice unnecessarily (N = 13, 26%) and have a habit of singing loudly (N = 16, 32%).

Section VI: Vocal symptoms information

Table 1.6: Frequency counts and percentages of vocal symptoms

Q.No.	Question	Response	Frequency (out of 50)	Percentage %
Q48	Have you had episodes of voice problems that have interfered with your profession/job?	Never	50	100
		Rare	0	0
		Sometimes	0	0
		Often	0	0
		Always	0	0

Table 1.6 shows the frequency counts and percentages of Vocal symptoms. In this section, none of the participants reported any episodes of voice problems that affect their job.

Section VII: Medical/ surgical Information

Table 1.7: Frequency counts and percentages of medical/ surgical information

Q.No.	Question	Response	Frequency (out of 50)	Percentage
Q50	Have you experienced any voice problems in the past that required you to seek professional help?	Never	50	100
		Rare	0	0
		Sometimes	0	0
		Often	0	0
		Always	0	0
Q51	Are you prone to recurrent problems affecting your voice?	Yes	5	10
		No	45	90
Q52	Do you take medications for hypertension/diabetes/ systemic disorder/acidity?	Never	30	60
		Rare	2	4
		Sometimes	8	16
		Often	2	4
		Always	8	16
Q53	Do you have any thyroid problems	Yes	0	0
		No	50	100
Q54	Are you under medication for any hormonal issues	Yes	0	0
		No	50	100

Table 1.7 shows the frequency counts and percentages of vocal symptoms. This section reported that all the participants are free from the experience of voice problems, no thyroid and hormonal problems, but 10% of participants (N = 5) suspect to develop recurrent voice problems. 16% of each participant (N = 8) are under medications to acidity sometimes and for hypertension/ diabetes always.

Vocal symptoms across various cooking conditions

For question 49, the symptoms across three conditions were tabulated in Table 1.8. The symptoms were calculated as present and absent based on frequency count, that is frequency of Never and rare has been considered as absent of vocal symptoms and frequency of sometimes, often and always were taken as present of vocal symptoms.

It is observed that in Group I, Hoarseness voice quality was present 20% during cooking and 3.3% after cooking. Whereas in Group II there was 5% of hoarseness voice quality during cooking. Among Group I, vocal fatigue/tiredness was present 16.7% during cooking. Whereas in Group II, 5% vocal fatigue/tiredness was present during cooking.

In Group I, change in voice was present 3.3% before cooking. 13.3% during cooking, 6.6% after cooking, whereas in Group II, change in voice was not present. Voice breaks / abrupt stops, Voice tremors/shakes, loss of voice were absent in both Groups in all three conditions. In Group I, 3.3% reported trouble speaking softly during cooking and 3.3% after cooking whereas Group II had no difficulty in speaking softly.

In Group I, 9.9% had trouble speaking loudly, during cooking and 3.3% after cooking. Whereas Group II had 5% trouble speaking loudly after cooking. In Group I, 6.7% reported decreased pitch range, during cooking. Whereas Group II had no

decreased pitch range. In Group I 3.3% had trouble speaking in high pitch, before cooking and 6.6% during cooking, whereas Group II reported no difficulty speaking in high pitch in any conditions. Group I and Group II reported no trouble speaking in low pitch in all three conditions.

In Group I, 36.6% had throat dryness, during cooking and 13.3% after cooking, whereas Group II reported no throat dryness. Sore throat was present in 3.3% before cooking, 30% during cooking and 30% after cooking whereas Group II reported no sore throat. In group I, choking/tickling sensation in the throat, was present in 6.7% during cooking and 3.3% after cooking whereas in Group II, 5% had choking/tickling sensation in the throat during cooking and 5% after cooking.

In Group I, tension or pain in throat was present 3.3% during cooking and 3.3% after cooking whereas in group II, there was no tension or pain in the throat reported. In Group I frequent cough was present 13.3% during cooking and 3.3% after cooking whereas in Group II there was no frequent cough reported. In Group I reduced breath was present in 13.3% during cooking whereas Group II had no reduced breath symptom. In Group I shortness of breath was present 3.3% during cooking whereas Group II reported no shortness of breath.

Table 1.8: Frequency counts and percentages of vocal symptoms across various conditions

Parameters	Group	Before Cooking						During Cooking										After Cooking									
		Never		Rare		Sometime		Never		Rare		Sometime		Often		Always		Never		Rare		Sometime		Often		Always	
		Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%
H	G-I	25	83.3	5	16.7	-	-	13	43.3	11	36.7	5	16.7	1	3.3	-	-	20	66.7	9	30.0	-	-	1	3.3	-	-
	G-II	19	95.0	1	5.0	-	-	12	60.0	7	35.0	1	5.0	-	-	-	-	20	100	-	-	-	-	-	-	-	-
VF	G-I	26	86.7	4	13.3	-	-	11	36.7	14	46.7	5	16.7			-	-	23	76.7	7	23.3	-	-	-	-	-	-
	G-II	9	45.0	11	55.0	-	-	9	45.0	10	50.0	1	5.0	-	-	-	-	16	80.0	4	20.0	-	-	-	-	-	-
CV	G-I	27	90.0	2	6.7	1	3.3	24	80.0	2	6.7	3	10.0	1	3.3	-	-	27	90.0	1	3.3	1	3.3	1	3.3	-	-
	G-II	20	100	-	-	-	-	20	100	-	-	-	-	-	-	-	-	19	95.0	1	5.0	-	-	-	-	-	-
VB	G-I	29	96.7	1	3.3	-	-	29	96.7	1	3.3	-	-	-	-	-	-	29	96.7	1	3.3	-	-	-	-	-	-
	G-II	20	100	-	-	-	-	19	95.0	1	5.0	-	-	-	-	-	-	20	100	-	-	-	-	-	-	-	-
VT	G-I	29	96.7	1	3.3	-	-	27	90.0	3	10.0	-	-	-	-	-	-	29	96.7	1	3.3	-	-	-	-	-	-
	G-II	20	100	-	-	-	-	20	100	-	-	-	-	-	-	-	-	20	100	-	-	-	-	-	-	-	-
LV	G-I	30	100	-	-	-	-	29	96.7	1	3.3	-	-	-	-	-	-	29	96.7	1	3.3	-	-	-	-	-	-
	G-II	20	100	-	-	-	-	20	100	-	-	-	-	-	-	-	-	20	100	-	-	-	-	-	-	-	-
TSS	G-I	29	96.7	1	3.3	-	-	28	93.3	1	3.3	1	3.3	-	-	-	-	29	96.7	-	-	1	3.3	-	-	-	-
	G-II	20	100	-	-	-	-	20	100	-	-	-	-	-	-	-	-	20	100	-	-	-	-	-	-	-	-
TSL	G-I	29	96.7	1	3.3	-	-	26	86.7	1	3.3	1	3.3	1	3.3	1	3.3	29	96.7	-	-	-	-	-	-	1	3.3
	G-II	20	100	-	-	-	-	19	95.0	1	5.0	-	-	-	-	-	-	19	95.0	-	-	1	5.0	-	-	-	-
DPR	G-I	29	96.7	1	3.3	-	-	26	86.7	2	6.7	2	6.7	-	-	-	-	29	96.7	1	3.3	-	-	-	-	-	-
	G-II	20	100	-	-	-	-	20	100	-	-	-	-	-	-	-	-	14	70.0	6	30.0	-	-	-	-	-	-
TSHP	G-I	29	96.7	-	-	1	3.3	27	90.0	1	3.3	1	3.3	1	3.3	-	-	29	96.7	1	3.3	-	-	-	-	-	-
	G-II	19	95.0	1	5.0	-	-	18	90.0	2	10.0	-	-	-	-	-	-	13	65.0	-	-	-	-	-	-	-	-

TSLP	**G-I**	30	100	-	-	-	-	29	96.7	1	3.3	-	-	-	-	-	-	30	100	-	-	-	-	-	-	-	-
	G-II	30	100	-	-	-	-	19	95.0	1	5.0	-	-	-	-	-	-	19	95.0	1	5.0	-	-	-	-	-	-
TD	**G-I**	25	83.3	5	16.7	-	-	14	46.7	5	16.7	10	33.3	1	3.3	-	-	23	76.7	3	10.0	3	10.0	1	3.3	-	-
	G-II	7	35.0	13	65.0	-	-	6	30.0	14	70.0	-	-	-	-	-	-	9	45.0	11	55.0	-	-	-	-	-	-
ST	**G-I**	24	80.0	5	16.7	1	3.3	11	36.7	10	33.3	9	30.0	-	-	-	-	7	23.3	14	46.7	9	30.0	-	-	-	-
	G-II	10	50.0	10	50.0	-	-	9	45.0	11	55.0	-	-	-	-	-	-	10	50.0	10	50.0	-	-	-	-	-	-
CTST	**G-I**	29	96.7	1	3.3	-	-	26	86.7	2	6.7	2	6.7	-	-	-	-	28	93.3	1	3.3	1	3.3	-	-	-	-
	G-II	20	100	-	-	-	-	17	85.0	2	10.0	1	5.0	-	-	-		19	95.0	-	-	1	5.0	-	-	-	-
TPT	**G-I**	28	93.3	2	6.7	-	-	25	83.3	4	13.3	-	-	1	3.3	-	-	25	83.3	4	13.3	1	3.3	-	-	-	-
	G-II	7	35.0	13	65.0	-	-	10	50.0	10	50.0	-	-	-	-	-	-	15	75.0	5	25.0	-	-	-	-	-	-
FC	**G-I**	28	93.3	2	6.7	-	-	20	66.7	6	20.0	3	10.0	1	3.3	-	-	22	73.3	7	23.3	1	3.3	-	-	-	-
	G-II	9	45.0	11	55.0	-	-	14	70.0	5	25.0	1	5.0	-	-	-	-	16	80.0	4	20.0	-	-	-	-	-	-
RBS	**G-I**	30	100	-	-	-	-	22	73.3	4	13.3	3	10.0	1	3.3	-	-	28	93.3	2	6.7	-	-	-	-	-	-
	G-II	20	100	-	-	-	-	13	65.0	7	35.0	-	-	-	-	-	-	20	100	-	-	-	-	-	-	-	-
SB	**G-I**	30	100	-	-	-	-	25	83.3	4	13.3	1	3.3	-	-	-	-	29	96.7	1	3.3	-	-	-	-	-	-
	G-II	20	100	-	-	-	-	19	95.0	1	5.0	-	-	-	-	-	-	20	100	-	-	-	-	-	-	-	-

Note: *H-Hoarseness; VF-Vocal fatigue; CV- Change in voice; VB -Voice breaks or abrupt stops; VT -Voice tremors or shakes; LV- Loss of voice; TSS-Trouble speaking softly; TSL-Trouble speaking loudly; DPR -Decreased pitch range; TSHP- Trouble speaking in a high pitch, TSHL -Trouble speaking in a low pitch; TD -Throat dryness; ST -Sore throat; CTST -Choking/tickling sensation in the throat; TPT -Tension or pain in the throat; FC -Frequent coughing; RBS -Reduced breath support; SB -Shortness of breath; Red colour fonts indicate high frequency of vocal symptoms affected; Black colour fonts indicate less/no frequency of vocal symptom.*

Determining MDVP parameters

The recorded stable phonation sample of /a/, a minimum of 3 sec was used for the analysis of various voice parameters using the MDVP program, and all the parameters of MDVP were obtained. the data was obtained and tabulated to perform the statistical analysis using SPSS version 26.0. Shapiro Wilks test was used to check the normality distribution of the data, the data of the following parameters was under normal distribution hence, an independent t-test was carried out. Table 2.1 represents the result of the independent t-test which falls under normal distribution.

Table 2.1: Comparison of MDVP parameters between the groups using t test

Parameters	**Group I**	**Group II**	**t-value**	***p*-value**
	Mean (SD)	**Mean (SD)**		
Mean Fundamental Frequency (MF0)	121.2 (14.3)	132.4 (15.6)	2.59	0.01*
Amplitude Tremor Frequency (Fatr)	4.10 (1.72)	4.38 (1.92)	0.53	0.59
Amplitude Perturbation Quotient (APQ)	3.71 (1.38)	2.45 (0.87)	3.61	0.00*
Noise to Harmonic Ratio (NHR)	0.14 (0.02)	0.13 (0.02)	0.41	0.68
Voice Turbulence Index (VTI)	0.03 (0.01)	0.02 (0.01)	1.66	0.10
Soft Phonation Index (SPI)	30.6 (12.3)	27.3 (13.1)	0.90	0.37
Fo-Tremor Intensity Index (FTRI)	0.44 (0.32)	0.28 (0.20)	2.01	0.04*

*Note: * $p < 0.05$; SD – Standard deviation.*

The result of the independent t-test showed a significant difference between Group I, and Group II in Mean fundamental frequency ($t = 2.59$; $p = 0.013$), Amplitude perturbation quotient ($t = 3.61$; $p = 0.001$), F0 tremor intensity index ($t = 2.01$; $p = 0.049$) and other parameters of MDVP did not show any significant difference between the groups.

Few of the MDVP parameters did not fall under normal distribution; hence, the Mann-Whitney test was carried out for the statistical analysis. Table 2.2 represents the result of the Mann Whitney test.

Table 2.2: Comparison of MDVP between the groups using Mann Whitney test

MDVP Parameters	Group I		Group II		|Z| value	*p* - value
	Mean (SD)	Median	Mean (SD)	Median		
Standard Deviation of F0 (STDF0)	2.69 (2.18)	2.03	1.81 (0.97)	1.63	2.57	0.01*
F0-Tremor Frequency (Fftr)	3.56 (2.51)	3.02	2.93 (2.14)	3.03	0.53	0.59
Jitter Percent (Jitt%)	1.46 (0.77)	1.26	0.82 (0.31)	.818	3.50	0.00*
Pitch Perturbation Quotient (PPQ)	0.85 (0.43)	.778	0.48 (0.17)	.482	3.68	0.00*
Fundamental Frequency Variation (vF0)	2.20 (1.64)	1.67	1.34 (0.64)	1.28	3.08	0.00*
Shimmer Percent (Shim%)	4.81 (1.86)	4.73	3.05 (1.14)	2.83	3.62	0.00*
Peak-to-Peak Amplitude Variation (vAm)	9.07 (5.06)	7.46	6.19 (2.49)	5.62	2.69	0.00*
Amplitude Tremor Intensity Index (ATRI)	2.72 (2.14)	2.37	2.22 (1.08)	1.72	0.71	0.47
Degree of Voice Breaks (DVB)	0.92 (2.09)	.000	0.25 (1.12)	.000	1.44	0.14
Degree of Sub-harmonics (DSH)	0.03 (0.20)	.000	0.03 (0.14)	.000	0.26	0.79
Degree of Voiceless (DOV)	8.02 (12.9)	.971	1.67 (4.93)	.000	2.15	0.03*
Number of Sub-harmonic Segments (NSH)	0.03 (0.18)	.000	0.10 (0.44)	.000	0.32	0.74
Number of Unvoiced Segments (NUV)	8.16 (13.1)	1.0	1.70 (4.98)	.000	2.13	0.03*

*Note: * $p < 0.05$; SD – Standard deviation.*

The result of the Mann-Whitney test showed a significant difference between Group1 and Group II ($p<0.05$) in Standard deviation of F0 ($|Z| = 2.57$), jitter percent ($|Z| = 3.5$) , Pitch Perturbation Quotient ($|Z| = 3.68$) , Fundamental frequency Variation

(|Z| = 3.08), Shimmer percent (|Z| = 3.62), Peak-to-Peak Amplitude Variation (|Z| = 2.69), Degree of Voiceless (|Z| = 2.15), Number of Unvoiced Segments (|Z| = 2.13) with the significance of $p < 0.01$.

Test-retest reliability of MDVP parameters

The test-retest reliability was done statistically for MDVP parameters. The Spearman correlation coefficient was used since the majority of parameters were not under normality.

The parameters, Fatr (0.66), APQ (0.66), Shim (0.56), vAm (0.52), had moderate reliability whereas DSH (0.82), NSH (0.82), SPI (0.89) had good reliability and DVB (1.00) had excellent reliability, MF0 (0.09), NHR (0.44), VTI (0.44), Jitt (0.24), PPQ (0.26), vF0 (0.40), ATRI (0.13), DUV (0.40), NUV (0.38), had poor reliability.

Determination of CAPE-V parameters:

The stable phonation sample of /a/, of minimum 3 sec, the standard reading passage Kannada, and the six cape v sentences in Kannada were given to Five SLPs for perceptual evaluation. The perceptual ratings obtained were tabulated. Mean average values of CAPE V parameters were obtained and statistically analysed. The Shapiro-Wilks test was used for the normality check.

Overall severity and Roughness were under normal distribution hence independent t-test was administered. Breathiness, Strain, Pitch, and Loudness were not under normal distribution and the Mann-Whitney test was administered.

The result of the independent t-test showed no significant difference between Group I and Group II in Overall severity (t = 1.47; *p* = 0.14), Roughness (t = 1.63; *p* = 0.10). Table 3.1 represents the data of independent t-test of CAPE-V parameters.

Table 3.1: Comparison of CAPE-V parameters between the groups using t test

CAPE-V Parameters	Group I	Group II	t-value	p-value
	Mean (SD)	Mean (SD)		
Overall severity	12.9 (6.18)	10.50 (4.7)	1.47	0.14
Roughness	11.70 (5.55)	9.28 (4.36)	1.63	0.10

Note: SD– Standard deviation.

The result of The Mann-Whitney test showed no significant difference between Group I and Group II in breathiness (|Z| = 0.73; p = 0.46), strain (|Z| = 0.36; p = 0.71), pitch (|Z| = 0.48; p = 0.62) and loudness(|Z| = 1.55; p = 0.11). (Table 3.2 represents the data of independent t-test of CAPE-V parameters)

Table 3.2: Comparison of CAPE-V parameters between the groups using Mann Whiteny test

CAPE-V Parameters	Group I		Group II		|Z|-value	p-value
	Mean (SD)	Median	Mean (SD)	Median		
Breathiness	7.78 (5.22)	5.9	6.32 (3.80)	5.3	0.73	0.46
Strain	7.59 (7.02)	6.7	4.07 (3.28)	6.0	0.36	0.71
Pitch	3.66 (3.35)	3.2	2.21 (1.85)	2.6	0.48	0.62
Loudness	3.43 (2.07)	2.8	2.78 (1.84)	1.9	1.55	0.11

Note: SD – Standard deviation.

Inter-rater reliability and test-retest reliability of CAPE-V parameters

The inter-rater reliability test was done for CAPE-V parameters and the overall reliability of Cronbach's alpha value of 0.79 was obtained for Overall severity indicating good reliability, 0.69 for Roughness indicating Moderate reliability, 0.82 for

breathiness indicating good reliability, 0.61 for strain indicating Moderate reliability, 0.56 for pitch indicating moderate reliability and 0.37 for loudness indicating Poor reliability.

The ten per cent sample of CAPE-V was subjected to test-retest reliability. Pearson correlation coefficient of 0.58 for Overall severity indicating moderate reliability and Roughness of 0.77, breathiness of 0.78, the pitch of 0.80, and loudness of 0.86 indicating good reliability.

The Correlation of MDVP and CAPE V Parameters

The Obtained data was tabulated and statistically analysed. Pearson correlation was used for Overall severity and Roughness against MDVP Parameters.

The result showed a significant correlation between Overall Severity and MFo (0.54), Fatr (0.67), DSH (0.66), Fftr (0.83), Shim (0.79), APQ (0.91), vAm (0.98), ATRI (0.93) DUV (0.80), NSH (0.66), NUV (0.81). Similarly, Between Roughness and MF0 (0.81), Fftr (0.54), Fatr (0.61), Shim (0.55), APQ (0.62), vAm (0.51), ATRI (0.73), DSH (0.50), DUV (0.59). NSH (0.50), NUV (0.61) significant correlation was observed respectively.

The Spearman Correlation was used for Breathiness, Strain, Pitch, and Loudness, against MDVP Parameters. The result showed a significant correlation between Breathiness and MF0 (0.51), Fftr (0.52), Fatr (0.64), Shim (0.51), vAm (0.52), DSH (0.83), NSH (0.83), NSH (0.83). Strain showed a significant correlation between Fftr (0.79), Fatr (0.71), PPQ (0.60), vFo (0.58), APQ (0.59), vAm (0.92), VTI (0.95), FTRI (0.52), ATRI (0.68), DSH (0.83). Pitch showed a significant correlation between MF0 (0.55), Shim (0.50), APQ (0.51), vAm (0.63), VTI (0.66), ATRI (0.58). Similarly,

loudness showed significant correlation between Shim (0.63), vAm (0.55), VTI (0.59). The other parameters had no correlation (Table 4).

Table 4: Correlation between MDVP and CAPE-V parameters

MDVP Parameters	**CAPE V Parameters**					
	Overall severity #	**Roughness** #	**Breathiness** ^	**Strain** ^	**Pitch** ^	**Loudness** ^
	r -value		**Delta value**			
Mean Fundamental Frequency	0.54*	0.81*	0.51*	0.22	0.55*	0.47
Standard Deviation of F0	0.29	0.46	0.17	0.29	0.03	0.06
F0-Tremor Frequency	0.83*	0.54*	0.52*	0.79*	0.40	0.38
Amplitude Tremor Frequency	0.67*	0.61*	0.64*	0.71*	0.42	0.40
Jitter Percent	0.045	0.01	0.47	0.46	0.21	0.31
Pitch Perturbation Quotient	0.06*	0.02	0.31	0.60*	0.23	0.29
Fundamental Frequency Variation	0.27	0.41	0.31	0.58*	0.11	0.21
Shimmer Percent	0.79*	0.55*	0.51*	0.40	0.50*	0.63*
Amplitude Perturbation Quotient	0.91*	0.62*	0.47	0.59*	0.51*	0.47
Peak-to-Peak Amplitude Variation	0.98*	0.51*	0.52*	0.92*	0.63*	0.55*
Noise to Harmonic Ratio	0.12	0.04	0.17	0.40	0.22	0.30
Voice Turbulence Index	0.33	0.13	0.27	0.95*	0.66*	0.59*
Soft Phonation Index	0.00	0.01	0.11	0.25	0.08	0.08
F0-Tremor Intensity Index	0.26	0.34	0.28	0.52*	0.30	0.17
Amplitude Tremor Intensity Index	0.93*	0.73*	0.36	0.68*	0.58*	0.44
Degree of Voice Breaks	0.14	0.11	0.07	0.05	0.21	0.36
Degree of Sub-harmonics	0.66*	0.50*	0.83*	0.83*	0.31	0.36
Degree of Voiceless	0.80*	0.59*	0.07	0.04	0.14	0.42
Number of Sub-harmonic Segments	0.66*	0.50*	0.83*	0.83*	0.31	0.36
Number of Unvoiced Segments	0.81*	0.61*	0.06	0.04	0.14	0.42

*Note: # pearson correlation; ^ spearman correlation; * p < 0.05*

CHAPTER V

DISCUSSION

The present study aimed to investigate the vocal problems and voice characteristics of Indian chefs who use MSG in cooking. This study included administering a voice survey questionnaire to Chefs with MSG (Group I) and Chefs without MSG (Group II) to determine and compare the acoustical and perceptual parameters of voice using MDVP and CAPE V between the groups

Vocal problem in Indian chefs

The questionnaire was administered to Group I and Group II to determine their vocal symptoms, vocal health and habits, and their knowledge about voice and its usage to understand their perception of voice and voice disorders.

From the questionnaire results, it is evident that the present lifestyle of a chef is inviting vocal problems and other health issues. Most of the chefs reported some of the vocal abuse habits such as excessive talking, speaking loudly, shouting/screaming, throat clearing, consuming spicy and oily food, and intake of excessive coffee, tea, cola and other caffeine drinks, which are the most common causes of voice problems.

From sections 1 (General information) and section 2(Workplace/feature information) of the questionnaires, it is clear that 78% of them work more than 8 hours per day, and most of the time, the environment is noisy. The majority (96%) of them are exposed to heat. Chefs also reported that the working environment will be scorching, and none use masks while cooking, which is a continuous exposure to heat, smoke and fumes. This long exposure can also be one of the causing factors for vocal problems. From the results of section 3(Lifestyle information), it is noted that chefs

have irregular timing of sleep and food intake; even though they eat enough and sleep more than 6 hours per day, the irregular food timings could have caused gastritis, which 40% of chefs reported. They are under medication for the same.

Section 4 (voice care information) infers that chefs are involved in extended usage of voice; most of them use their voice for 4-5 hours a day, which can also increase the vocal load and may affect their voice. Among them, very few (12%) are concerned and aware of voice issues; along with these symptoms, they also have some good vocal habits, such as drinking >10 glasses, and most do not chew Any Pan/ gutka/ gums.

Vocal Symptoms

Hoarseness was reported to be evident in during cooking in both groups, but Group I rated more. This might be due to the more prolonged exposure to spices, heat and fumes in both the groups that may have affected the voice quality and the possible cause in Group I might be continuous inhalation of additives, preservatives, and accumulation in vocal folds affecting thickness which might have resulted in hoarseness, further study to examine the vocal folds in chefs may give result on these aspects.

Vocal fatigue/ tiredness was also reported rarely in both the groups before and during cooking conditions. Group I rated relatively more during cooking conditions; this might be due to the temperature at work, noise in the background and vocal use, as reported by most chefs during cooking, which might have impacted vocal tiredness.

For voice breaks / abrupt stops, Voice tremors/shakes, loss of voice, trouble speaking softly, and speaking in a low pitch, Group II had no difficulties in all three conditions. In contrast, Group I reported rarely, which can result from the cumulative

effect of work environment factors and their vocal behaviours. It has already been established in the literature that the presence of biochemical alterations in the vocal fold layers may also cause the feeling of symptoms. The mucosal membrane of the upper respiratory tract can become irritated by chemical components commonly present in work situations such as gas, fumes, mist, vapour, and smoke (Smith et al., 1963).

Frequent cough, reduced breath support and shortness of breath was reported by both groups however Group I reported slightly more during cooking., This might be due to the long-term impact of MSG in affecting the respiratory system.

According to Geneid et al. (2009), nine people who were thought to have occupational rhinitis or asthma reported experiencing acute voice and throat symptoms after being exposed to organic dust for a brief duration of 30 minutes. Moreover, Mesallam et al. (2015) discovered that 27.8% of participants had laryngeal symptoms after experiencing short-term exposure to vapours from incense stick burning.

The voice change, tickling sensation in the throat, tension/ pain in the throat, and trouble speaking loudly reported soreness, dryness, reduced pitch range, and trouble speaking in high pitch slightly more in Group II during and after cooking conditions which may be due to the after-effect of long-term inhalation and exposure to MSG and other chemicals in cooking and also the after effect of exposure during cooking might have resulted in these symptoms in chefs with MSG. Chefs frequently attempt to speak louder than usual due to noise during cooking, which leads to fatigue and overuse. According to Mathieson (1993), sensations like tickling, burning, and sore throat are frequently brought on by tissue damage or inflammatory changes .there is a connection between the symptoms that people report and the type of voice issue they have. Most often, practices that overuse or mistreat muscles are to blame for tightness,

pain, and lumps in the throat. Tightness, discomfort, and lump in the throat may be caused by overusing the voice in the workplace and being exposed to chemicals.

Voice Characteristics of Indian Chefs

MDVP and CAPE V measures were obtained from the participants of both Group I and II and certain differences were observed in frequency, perturbation, tremor and voicing-related parameters between the groups.

Frequency related Parameters

In this current study, the acoustic analysis through MDVP parameters revealed that the Mean fundamental frequency is reduced and the standard deviation of F0 is increased in Group 1 compared to Group II.

As investigated in previous studies by Tuhanioğlu et al. (2019), F0 is the primary parameter that gets affected whenever there are structural or physiological changes in vocal fold vibratory patterns. Smith et al. (1963) reported that the mucosal layer gets affected due to exposure to chemicals in the working environment. The study by Torabi et al. (2016) also reveals similar results in groups with chemical exposure.

In accordance to that, the chemical reaction of food additives affected, especially MSG, with the mucosal layer would have affected the vibratory pattern in Group I. This might have caused a reduction in F0 and a more asymmetrical vibratory pattern which increases the standard deviation of F0 (STD).

Perturbation related parameters

Jitter and shimmer are both sensitive parameters to evaluate instabilities in frequency and amplitude (Boone et al., 2005; Tuhaniolu et al., 2019). In our study, there

is an increase in jitter and shimmer, Amplitude perturbation quotient, Pitch perturbation quotient, and Peak-to-Peak amplitude variation values in Group I compared to Group II. It is clear from the result that there is instability in the successive cycle-to-cycle variation in the vocal fold in chefs with MSG. As mentioned in earlier literature, this instability may be brought on by modifications in the vibratory on inhalation of chemicals. Continuous exposure to irritants would result in a few alterations in symmetry or periodicity, the glottis closure patterns, and mucosal wave quality, which would change the vocal fold vibratory pattern (Gallivan et al., 2007; Nooromplakal et al., 2011).

The MSG may have impacted Group I which resulted in higher jitter and shimmer. This result is in support of the previous study done by Dogan (2007) in individuals who had chemical exposure resulted in higher jitter and shimmer values. The result of this study on increase of jitter and shimmer values is similar to the study done by Messalam et al. (2005), where there was an increase in jitter, shimmer, and HNR values post-exposure fumes released from burning incense sticks for a brief period of 5 minutes, and Varghese et al. (2019) where they discovered higher jitter and F0 in saw dust workers as compared to normal.

Tremor related parameters

FTRI indicates tremor-related changes in the voice characteristics. Previous studies by Yasin and Jayakumar, (2018) reported that voice tremors in imams due to poor vocal and non-vocal habits disturbed perturbation, noise and tremor-related measures. A study by Ludlow et al. (1986) reported that few patients with benign essential tremors, and spasmodic dysphonia showed an increase in jitter, and shimmer associated with voice tremors.

Chefs with MSG in our study exhibited similar results with FTRI, and shimmer and jitter which is in accordance with the previous studies. The possible cause for the increase in tremors might be due to vocal behaviours and habits such as increased vocal effort, vocal tiredness, lack of stability in control on voicing.

Voicing parameters

In the current study Group II had an increase in the degree of voiceless and number of unvoiced segments compared to Group I, this could be due to the cumulative effect of increasing in jitter and shimmer which could have affected the vibratory pattern of vocal folds. Additionally, an increase in the standard deviation of F0 and tremor-related parameters could have contributed to the variation in voicing parameters.

Correlation between CAPE V and MDVP

In this study, it is observed that there is a significant correlation between overall severity and frequency parameters (MF0), perturbation-related parameters such as Shim, APQ, vAm, ATRI, Tremor-related parameters such as Fatr, Fftr and voicing-related parameters such as DSH, DUV and NSH, NUV. Similarly, Between Roughness and frequency parameters (MF0), Tremor-related parameters Fftr (.548), Fatr (.618), perturbation-related parameters, such as Shim, APQ, vAm (ATRI), voicing related parameters such as DSH, DUV, NSH, NUV

Breathiness showed a correlation with frequency parameter (MF0), Tremor-related parameters, Fftr, Fatr, perturbation-related parameters, Shim, vAm, voicing related parameters like DSH, NSH.

Strain showed a significant correlation between Tremor-related parameters Fftr, Fatr, VTI, FTRI, ATRI, perturbation-related parameters, PPQ, vF0, APQ, vAm, , and voice related parameter such as DSH.

Pitch showed a significant correlation between frequency-related parameters (MF0), perturbation-related parameters such as Shim, APQ, and vAm, and tremor-related parameters such as VTI, and ATRI. Similarly, loudness significantly correlated with perturbation-related parameters such as Shim, vAm, and tremor-related parameters (VTI).

The correlation results of MDVP parameters and CAPE V parameters of this study are similar with several studies. A study by Bhuta et al. (2004) correlated MDVP and GRBAS and revealed that roughness correlated with NHR and Breathiness correlated with SPI, A study by Sachdeva and Shrivastava, (2018) reported an increased correlation between jitter, shimmer and NHR with the overall severity of the CAPE V parameter. Similarly, another study to correlate perceptual and acoustic parameters revealed Jitter, F0 and HNR, correlates with perceptual parameters in theatre artists (Arabi et al, 2023). This shows that even with the auditory perceptual measures the effect of voice characteristics can be easily assessed.

CHAPTER V1

SUMMARY AND CONCLUSION

The current study aims to investigate the vocal problems and voice characteristics of Indian chefs who use MSG in cooking. A total of 50 members were participants: 30 from Group I (Who use MSG) and 20 from Group II (Who do not use MSG). A survey questionnaire was used to estimate the vocal symptoms and voice characteristics, MDVP for acoustic analysis and CAPE V for perceptual analysis.

Based on the questionnaire, it was observed that most of the chefs were involved in more than eight hours of work and were exposed to high temperatures and smoke and fumes from the cooking environment and none of them used masks during cooking. The majority of them reported they are involved in excessive talking/ shouting during cooking since the work environment is noisy. the chef's food and sleep cycles are disturbed since they sleep late and work overtime, with no physical exercises leading to stress and gastritis affecting their health.

Most of them reported that they use their voice for more than 4 to 6 hours, involving continuous and loud talking during work. they are unaware of any vocal behaviours causing voice disorders. From the frequency count of the questionnaire, it is inferred that Hoarseness is seen more in Group I during cooking due to continuous inhalation of fumes of chemicals such as ingredients and preservatives like MSG and exposure to heat.

In association with that, most of the chefs in Group I reported vocal fatigue/tiredness during cooking since they involved in effortful and loud speaking due to background noise at work and reported voice breaks / abrupt stops, Voice

tremors/shakes, loss of voice, trouble speaking softly, and speaking in a low pitch during cooking could be due to biochemical alteration of vocal folds due to inhalation of gas, fumes, mist, vapour and smoke released during cooking with MSG.

Group I reported frequent cough, reduced breath support and shortness of breath more during cooking and also the voice change, tickling sensation in the throat, tension/ pain in the throat, and trouble speaking loudly, soreness, dryness, reduced pitch range, and trouble speaking in high pitch during and after cooking conditions due to long term effect of MSG on respiratory and vocal systems. These symptoms are also the result of an incorrect way of using and overuse of muscles of voice with external predisposing factors for risk of voice disorders in Group I.

The acoustic and perceptual analysis from this study infers that the frequency-related parameters such as Mean fundamental frequency, Standard deviation of F0, perturbation-related parameters such as Amplitude perturbation quotient, jitter per cent, shimmer percent, Pitch Perturbation Quotient, Peak- to-peak Amplitude Variation, tremor-related parameters such as F0 tremor intensity index and voicing-related parameters such as Degree of Voiceless, Number of Unvoiced Segments are affected and deviated in Group I compared to Group II.

The perceptual and acoustic parameters showed a significant correlation between CAPE V and a few MDVP parameters. The overall severity Parameter of CAPE-V had an excellent positive correlation with Peak-to-Peak Amplitude Variation, Amplitude Tremor Intensity Index and Amplitude Perturbation Quotient.

From this study we can conclude that MSG is having an impact on vocal problems and voice characteristics of chefs. Chefs and public should be aware of the

effects of MSG and other food additives being causative factors for multiple health issues.

Implications

1. This study is a contribution to the literature since there are not many studies on non-professional voice users, especially in the chef's population.

2. The present study can create awareness about the significance of voice ability in non-professional voice users especially in chefs.

3. Nonprofessional voice users can also be found to be at risk of developing vocal and voice-related issues due to various factors such as chemical exposure, exposure to heat, noise exposure during their occupation.

4. The impact of food ingredients, especially MSG, which is widely used in cooking, and its effects on inhalation and consumption by individuals can be comprehensible

5. From the current study, it's evident that voice characteristics are majorly affected by chefs who use MSG, which needs to be addressed to the public and certain care to be provided through certain precautionary methods.

Limitations of the study

The present study's limitations are

1. The study couldn’t control the effect of other preservatives, additives, or chemicals involved in other ingredients of cooking items such as spices, cooking oil etc.

2. The study was limited to MSG but did not explain the quantitative measurements of MSG used and its effect based on the quantity.

3. The MSG impact on voice acoustics was not investigated before, during and post-cooking conditions.

4. The size of the participants was not equally matched

Future Directions

1. The impact of the quantity of MSG and other chemical food additives that are regularly used in cooking can be explored and compared between chefs and non-chefs.

2. The MSG impact on voice characteristics can be investigated under the different settings of cooking (closed kitchen and open kitchen set-up) and also in three different conditions (before, during, and after cooking).

3. The effect of MSG chemical exposure on various speech sub-systems.

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APPENDIX - A

QUESTIONNAIRE

Questionnaire to Identifying the Vocal characteristics and Voice demands of Professional Chefs

Name: _____ Age/Gender: _____

Mother tongue: _____ Phone no.: _____

Place of work: closed type restaurant /open type _____

Full-time/Part-time chef: _____

Qualification and designation:

**The information obtained will be kept confidential and used solely for research and educational purposes.

I**nstruction**: Please answer accordingly, tick one of the applicable options/ write your response based on the questions.

Section 1

General information

1. At what age you started working as a chef?

   ☐18- 25 ☐26- 30 ☐ 31- 40 ☐ 41- 50

2. How many years of total working experience do you have as a chef?

   ☐ <5years ☐ 5- 10 years ☐10 -15 years ☐ >15 years

3. What is the maximum number of hours you work as a chef?
   ☐<4 hrs ☐4-6 hrs ☐6- 8 hours ☐ >8 hrs

4. What is the minimum number of hours you work as a chef?

   ☐<4 hrs ☐ 4- 6 hrs ☐6-8 hours ☐>8hrs

5. Do you have a job, in addition to cooking that requires extensive voice use?
   ☐Yes ☐No If yes, mention

6. Do you use mask while cooking?

   ☐Yes ☐No If yes, for how long?

7. Do you use Mono Sodium Glutamate /Chinese salt /Ajinomoto in cooking?
   ☐Yes ☐No
8. What are all the other preservative chemicals that you use in cooking?

9. Do you have a history of ear infections or hearing problems?
   ☐Yes ☐No If yes, mention when?

10. Do you suffer from constant upper respiratory infections?
    ☐Yes ☐No If yes, mention

11. What types of food do you cook?
    ☐North Indian ☐South Indian ☐ Chinese ☐ Any other

    Mention, if any other

Section 2

Workplace/feature information

12. Do you involve in some behaviours such as excessive talking, speaking loudly, yelling, and excessive throat clearing during working time
    ☐ Yes ☐No

13. Do you work/worked in a noisy environment?
    ☐Yes ☐No

If yes, answer the following.

1. how long (in months/years) have you worked in a noisy environment

2. For how many hours per day?

3. How noisy is the working environment?

   ☐Soft ☐Moderate ☐Loud ☐Very loud

14. Is your working place dusty/smoky?
    ☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

15. Are you exposed to extreme heat while cooking?
    ☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

16. do you work based on shifts or fixed timing?

☐Yes ☐No

If yes, mention

17. do you work overtime?
    ☐Yes ☐No
    If yes, mention the overtime hours

18. what is your workplace temperature?
    ☐Very hot ☐Hot ☐Neutral ☐Cold ☐Very cold

19. Do you feel tired while working?
☐Yes ☐No

Section 3

lifestyle information

20. Do you consume the following foods listed below?
    1. Spicy or oily food
       ☐Never ☐Rarely ☐Sometimes ☐Often ☐Always
    2. Extreme hot or cold items
       ☐Never ☐Rarely ☐Sometimes ☐Often ☐Always
    3. Coffee, tea, cola, or other caffeine-containing drinks
       ☐Never ☐Rarely ☐Sometimes ☐Often ☐Always
    4. Nonvegetarian food
       ☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

21. Do you have a habit of consuming chewing gum/ pan/gutka/beeda?

☐Never ☐Rarely ☐Sometimes ☐Often ☐Always If consuming, do you have a specific reason for chewing gum/ pan/gutka/beeda?

22. How many glasses of water do you drink per day?

☐ 2-4 glasses ☐4-8 glasses ☐8-10 glasses ☐ >10 glasses

23. Do you avoid any specific food items?
☐Yes ☐No
If yes, mention them and the reasons for avoiding them.

24. Are you allergic to any specific food item?

☐Yes ☐No If yes, mention them

25. What time do you usually sleep?

26. How many hours per day do you get to sleep?

☐3-4 hrs ☐ 4-5 hrs ☐5-6 hrs ☐>6 hrs

27. Do you perform workouts/exercise like walking or yoga?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

28. Do you feel personal or professional stress?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

Section 4

Voice care information

29. How many hours per day do you use your voice?
☐2 hrs ☐2-4 hrs ☐4-6 hrs ☐6hrs

30. Do you think your profession requires extensive voice use?
☐Yes ☐No
31. Do you feel concerned when you notice a change in your voice?
☐Yes ☐No
If yes, why?

32. What measures do you take to conserve your voice?

33. What do you generally do when your voice feels tired?

34. Do you use any quick home remedies to improve your voice?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always
If yes, list any remedies that you use.

35. Do you engage in regular voice exercises?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always
If yes, describe the types of exercises you perform.

36. Are you aware of any voice-related problems?
☐Yes ☐No

37. Do you think you have any voice problems?
☐Yes ☐No

38. When do you feel that "You have a voice problem"?

39. Whom would you consult if you have a voice problem?

40. How long would you wait to consult if you have a voice problem?

41. In your opinion, what are the risk factors for developing a voice problem?

Section 5

Vocal habits information

42. Do you indulge in long continuous chat?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

43. Do you indulge in loud talking?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

44. Do you indulge in screaming or shouting?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

45. Do you clear your throat?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always
46. Do you believe that you are using your voice unnecessarily?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

47. Do you have habit of singing loudly?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

Section 6

Vocal symptoms information

48. Have you had episodes of voice problems that have interfered with your profession/job?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always If yes,
    1) what type of voice problems?

    2) How did you overcome this voice problem?

49. Do you experience any of the following voice problems mentioned in the check box?

Please tick the correct checkbox to rate.

1) Never = 0
2) Rarely = 1
3) Sometimes = 2
4) Often = 3
5) Always = 4

Vocal symptoms	**Before cooking**					**During cooking**					**After cooking**				
	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
Hoarseness															
Vocal fatigue/ tiredness															
Change in voice															
Voice breaks or abrupt stops															
Voice tremors or shakes															
Loss of voice															
Trouble speaking softly															
Trouble speaking loudly															
Decreased pitch range															
Trouble speaking in a high pitch															
Trouble speaking in a low pitch															
Throat dryness															
Sore throat															
Choking/tickling sensation in the throat															

Tension or pain in the throat														
Frequent coughing														
Reduced breath support														
Shortness of breath														

Section 7

Medical/Surgical information

50. Have you experienced any voice problems in the past that required you to seek professional help?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

If yes, describe the problem(s) and treatment(s).

51. Are you prone to recurrent problems affecting your voice?
☐Yes ☐No

52. Do you take medications for hypertension/diabetes/ systemic disorder/acidity?
☐Never ☐Rarely ☐Sometimes ☐Often ☐Always

If yes, list them.

53. Do you have any thyroid problems?
☐Yes ☐No
54. Are you under medication for any hormonal issues?
☐Yes ☐No

Any suggestions:

Signature of the participant

APPENDIX - B

ಪ್ರಶ್ನಾವಳಿ

ವೃತ್ತಿಪರ ಬಾಣಸಿಗರ ಧ್ವನಿ ಗುಣಲಕ್ಷಣಗಳು ಮತ್ತು ಧ್ವನಿ ಬೇಡಿಕೆಗಳನ್ನು ಗುರುತಿಸಲು ಪ್ರಶ್ನಾವಳಿ

ಈ ಪ್ರಶ್ನಾವಳಿಯು ವೃತ್ತಿಪರ ಬಾಣಸಿಗರ ಮಾತಿನ ಗುಣಲಕ್ಷಣಗಳು ಮತ್ತು ಧ್ವನಿ ಬೇಡಿಕೆಗಳನ್ನು ಗುರುತಿಸುವ ಉದ್ದೇಶವನ್ನು ಹೊಂದಿದೆ

ಪಡೆದ ಮಾಹಿತಿಯನ್ನು ಗೌಪ್ಯವಾಗಿ ಇರಿಸಲಾಗುತ್ತದೆ ಮತ್ತು ಸಂಶೋಧನೆ ಹಾಗೂ ಶೈಕ್ಷಣಿಕ ಉದ್ದೇಶಗಳಿಗಾಗಿ ಮಾತ್ರ ಬಳಸಲಾಗುತ್ತದೆ..

ಹೆಸರು..... : ಮಾತೃಭಾಷೆ..... :

ಪೂರ್ಣಕಾಲಿಕ/ಅರೆಕಾಲಿಕ ಬಾಣಸಿಗ..... : ಫೋನ್ ಸಂಖ್ಯೆ.....:

ಕೆಲಸದ ಸ್ಥಳ :ಮುಚ್ಚಲಾದ ಬಗೆಯ ಅಡುಗೆಸ್ಥಳ / ತೆರೆದ ಬಗೆಯ ಅಡುಗೆಸ್ಥಳ .....

ವಿದ್ಯಾರ್ಹತೆ ಮತ್ತು ಹುದ್ದೆ.....:

ಸೂಚನೆ: ದಯವಿಟ್ಟು ಪ್ರಶ್ನೆಗಳಿಗೆ ಅನುಗುಣವಾಗಿ ಉತ್ತರಿಸಿ, ಅನ್ವಯವಾಗುವ ಆಯ್ಕೆಗಳಲ್ಲಿ ಒಂದನ್ನು ಟಿಕ್ ಮಾಡಿ/ ಪ್ರಶ್ನೆಗಳ ಆಧಾರದ ಮೇಲೆ ನಿಮ್ಮ ಪ್ರತಿಕ್ರಿಯೆಯನ್ನು ಬರೆಯಿರಿ

ವಿಭಾಗ1

ಸಾಮಾನ್ಯ ಮಾಹಿತಿ

.1ಯಾವ ವಯಸ್ಸಿನಲ್ಲಿ ನೀವು ಬಾಣಸಿಗರಾಗಿ ಕೆಲಸ ಮಾಡಲು ಪ್ರಾರಂಭಿಸಿದ್ದೀರಿ?

☐18- 25 ☐26- 30 ☐ 31- 40 ☐ 41- 50

.2ಬಾಣಸಿಗರಾಗಿ ನೀವು ಎಷ್ಟು ವರ್ಷಗಳ ಒಟ್ಟು ಕೆಲಸದ ಅನುಭವವನ್ನು ಹೊಂದಿದ್ದೀರಿ?

☐ 5> ವರ್ಷಗಳು ☐ 10 -5ವರ್ಷಗಳು ☐ 15- 10ವರ್ಷಗಳು ☐ 15< ವರ್ಷಗಳು

.3ಬಾಣಸಿಗರಾಗಿ ನೀವು ಕೆಲಸ ಮಾಡುವ ಗರಿಷ್ಠ ಗಂಟೆಗಳ ಸಂಖ್ಯೆ ಎಷ್ಟು?

☐ 4> ಗಂಟೆಗಳು ☐ 6-4 ಗಂಟೆಗಳು ☐ 8 -6 ಗಂಟೆಗಳು ☐ 8<ಗಂಟೆಗಳು

.4ಬಾಣಸಿಗರಾಗಿ ನೀವು ಕೆಲಸ ಮಾಡುವ ಕನಿಷ್ಠ ಗಂಟೆಗಳ ಸಂಖ್ಯೆ ಎಷ್ಟು?

☐ 4>ಗಂಟೆಗಳು ☐ 6 -4 ಗಂಟೆಗಳು ☐ 8-6 ಗಂಟೆಗಳು ☐8<ಗಂಟೆಗಳು

.5ಅಡುಗೆ ಕೆಲಸದ ಜೊತೆಗೆ, ಅತಿಯಾದ ಧ್ವನಿ ಬಳಕೆ ಅಗತ್ಯವಿರುವ ಬೇರೆ ಯಾವುದಾದರು ವೃತ್ತಿಯಲ್ಲಿ ನಿಮ್ಮನ್ನು ತೊಡಗಿಸಿಕೊಳ್ಳುತ್ತೀರಾ?

☐ಹೌದು ☐ಇಲ್ಲ ಹೌದು ಎಂದಾದಲ್ಲಿ ,ತಿಳಿಸಿ .

.6ಅಡುಗೆ ಮಾಡುವಾಗ ನೀವು ಮಾಸ್ಕ್ ಬಳಸುತ್ತೀರಾ?

☐ಹೌದು ☐ಇಲ್ಲ

ಹೌದು ಎಂದಾದಲ್ಲಿ ,ಎಷ್ಟು ಸಮಯದವರೆಗೆ?

.7ಅಡುಗೆಯಲ್ಲಿನೀವು ಮೊನೊ ಸೋಡಿಯಂ ಗ್ಲುಟಮೇಟ್ /ಚೈನೀಸ್ ಉಪ್ಪು / ಅಜಿನೊಮೊಟೊವನ್ನು ಬಳಸುತ್ತೀರಾ?

☐ಹೌದು ☐ಇಲ್ಲ

.8ಅಡುಗೆಯಲ್ಲಿ ನೀವು ಬಳಸುವ ಇತರ ಎಲ್ಲಾ ಸಂರಕ್ಷಕ ರಾಸಾಯನಿಕಗಳು) ಆಹಾರ ಕೆಡದಂತೆ ಕಾಪಾಡಲು ಬಳಸುವ ವಸ್ತು) ಯಾವುವು?

.9ನೀವು ಈ ಹಿಂದೆ, ಕಿವಿ ಸೋಂಕುಗಳು ಅಥವಾ ಶ್ರವಣ ಸಮಸ್ಯೆಗಳನ್ನು ಹೊಂದಿದ್ದಿರಾ ?

☐ಹೌದು ☐ಇಲ್ಲ ಹೌದು ಎಂದಾದಲ್ಲಿ ,ಯಾವಾಗ ಎಂಬುದನ್ನು ತಿಳಿಸಿ .

.10ನೀವು ನಿರಂತರವಾಗಿ ಮೇಲ್ಭಾಗ ಶ್ವಾಸೇಂದ್ರಿಯ, ಉಸಿರಾಟದ ಸೋಂಕಿನಿಂದ ಬಳಲುತ್ತಿದ್ದೀರಾ ?

☐ಹೌದು ☐ಇಲ್ಲ ಹೌದು ಎಂದಾದಲ್ಲಿ ,ತಿಳಿಸಿ .

.11ನೀವು ಯಾವ ರೀತಿಯ ಅಡುಗೆ ಮಾಡುತ್ತೀರಿ?

☐ಉತ್ತರ ಭಾರತೀಯ ☐ದಕ್ಷಿಣ ಭಾರತೀಯ ☐ಚೈನೀಸ್ ☐ಇತರೆ

ಬೇರೆ ಯಾವುದಾದರೂ ಇದ್ದರೆ ಸೂಚಿಸಿ

ವಿಭಾಗ2

ಕೆಲಸದ ಸ್ಥಳ/ವೈಶಿಷ್ಟ್ಯ ಮಾಹಿತಿ

.12ಕೆಲಸದ ಸಮಯದಲ್ಲಿ ಅತಿಯಾಗಿ ಮಾತನಾಡುವುದು ,ಜೋರಾಗಿ ಮಾತನಾಡುವುದು ,ಕಿರುಚುವುದು ಮತ್ತು ಅತಿಯಾದ ಗಂಟಲು ತೆರವುಗೊಳಿಸುವಿಕೆಯಂತಹ ಕೆಲವು ನಡವಳಿಕೆಗಳಲ್ಲಿ ನೀವು ತೊಡಗಿಸಿಕೊಂಡಿದ್ದೀರಾ

☐ಹೌದು ☐ಇಲ್ಲ

.13ಗದ್ದಲದ ವಾತಾವರಣದಲ್ಲಿ ನೀವು ಕೆಲಸ ಮಾಡುತ್ತಿದ್ದೀರಾ /ಕೆಲಸ ಮಾಡುತ್ತಿದ್ದೀರಾ ?

☐ಹೌದು ☐ಇಲ್ಲ

ಹೌದು ಎಂದಾದಲ್ಲಿ, ಕೆಳಗಿನವುಗಳಿಗೆ ಉತ್ತರಿಸಿ

1. ಗದ್ದಲದ ವಾತಾವರಣದಲ್ಲಿ ನೀವು ಎಷ್ಟು ಕಾಲ) ತಿಂಗಳುಗಳು /ವರ್ಷಗಳು (ಕೆಲಸ ಮಾಡಿದ್ದೀರಿ?

2. ದಿನಕ್ಕೆ ಎಷ್ಟು ಗಂಟೆಗಳ ಕಾಲ ಕೆಲಸ ಮಾಡಿದ್ದೀರಿ??

3. ಕೆಲಸದ ವಾತಾವರಣವು ಎಷ್ಟು ಗದ್ದಲದಿಂದ ಕೂಡಿತ್ತು ?

☐ಮೃದು ☐ಮಧ್ಯಮ ☐ಜೋರಾಗಿ ☐ತುಂಬಾ ಜೋರಾಗಿ

.14ನಿಮ್ಮ ಕೆಲಸದ ಸ್ಥಳವು ಧೂಳು / ಹೊಗೆಯಿಂದ ಕೂಡಿದೆಯೇ ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

.15ಅಡುಗೆ ಮಾಡುವಾಗ ನೀವು ವಿಪರೀತ ಶಾಖಕ್ಕೆ ಒಡ್ಡಿಕೊಳ್ಳುತ್ತೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

.16ನೀವು ಶಿಫ್ಟ್ ಅಥವಾ ನಿಗದಿತ ಸಮಯದ ಆಧಾರದ ಮೇಲೆ ಕೆಲಸ ಮಾಡುತ್ತೀರಾ?

☐ಹೌದು ☐ಇಲ್ಲ

ಹೌದು ಎಂದಾದಲ್ಲಿ ,ಉಲ್ಲೇಖಿಸಿ

.17ನೀವು ಹೆಚ್ಚುವರಿ ಸಮಯ) ಓವರ್ ಟೈಮ್(ಕೆಲಸ ಮಾಡುತ್ತೀರಾ?

ಹೌದು ಎಂದಾದರೆ ಓವರ್ ಟೈಮ್ ಸಮಯವನ್ನು ನಮೂದಿಸಿ

18.ನೀವು ಕೆಲಸ ಮಾಡುವ ಸ್ಥಳದ ತಾಪಮಾನವೇನು

☐ತುಂಬಾ ಬಿಸಿ ☐ಬಿಸಿ ☐ ಮಧ್ಯಮ ☐ ಚಳಿ ☐ಬಹಳ ಚಳಿ

.19ಕೆಲಸ ಮಾಡುವಾಗ ಆಯಾಸವಾಗುತ್ತದೆಯೇ?

☐ಹೌದು ☐ಇಲ್ಲ

ವಿಭಾಗ3

ಜೀವನಶೈಲಿ ಮಾಹಿತಿ

.20ನೀವು ಈ ಕೆಳಗಿನ ಆಹಾರ ಪದಾರ್ಥಗಳನ್ನು ಸೇವಿಸುತ್ತೀರಾ:

1. ಮಸಾಲೆಯುಕ್ತ ಅಥವಾ ಎಣ್ಣೆಯುಕ್ತ ಆಹಾರ

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

2. ವಿಪರೀತ ಬಿಸಿ ಅಥವಾ ತಂಪಾದ ವಸ್ತುಗಳು

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

3. ಕಾಫಿ ,ಚಹಾ ,ಕೋಲಾ ,ಅಥವಾ ಇತರ ಕೆಫೀನ್ ಹೊಂದಿರುವ ಪಾನೀಯಗಳು

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

4. ಮಾಂಸಾಹಾರಿ ಆಹಾರ

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

.21ನೀವು ಚೂಯಿಂಗ್ ಗಮ್ / ಪಾನ್ / ಗುಟ್ಕಾ / ಬೀಡಾ ಸೇವಿಸುವ ಅಭ್ಯಾಸವನ್ನು ಹೊಂದಿದ್ದೀರಾ ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

ಹೌದು ಎಂದಾದಲ್ಲಿ ,ಚೂಯಿಂಗ್ ಗಮ್ / ಪಾನ್ / ಗುಟ್ಕಾ / ಬೀಡಾ ಸೇವಿಸಲು ನಿರ್ದಿಷ್ಟ ಕಾರಣವಿದೆಯೇ?

.22ನೀವು ದಿನಕ್ಕೆ ಎಷ್ಟು ಲೋಟ ನೀರು ಕುಡಿಯುತ್ತೀರಿ?

☐ 2-4 ಲೋಟಗಳು ☐4-8 ಲೋಟಗಳು ☐8-10 ಲೋಟಗಳು ☐ >10 ಲೋಟಗಳು

.23ನೀವು ಯಾವುದೇ ನಿರ್ದಿಷ್ಟ ಆಹಾರ ಪದಾರ್ಥಗಳನ್ನು ಸೇವಿಸಲು ತಪ್ಪಿಸುವಿರಾ ?☐ಹೌದು ☐ಇಲ್ಲ

ಹೌದು ಎಂದಾದಲ್ಲಿ ,ಅವುಗಳನ್ನು ಮತ್ತು ಅವುಗಳನ್ನು ತಪ್ಪಿಸಲು ಕಾರಣಗಳನ್ನು ತಿಳಿಸಿ.

.24ನೀವು ಯಾವುದೇ ನಿರ್ದಿಷ್ಟ ಆಹಾರ ಪದಾರ್ಥಕ್ಕೆ ಅಲರ್ಜಿ ಹೊಂದಿದ್ದೀರಾ ?☐ಹೌದು ☐ಇಲ್ಲ
ಹೌದು ಎಂದಾದಲ್ಲಿ, ಯಾವುದೆಂದುತಿಳಿಸಿ

.25ನೀವು ಸಾಮಾನ್ಯವಾಗಿ ಯಾವ ಸಮಯದಲ್ಲಿ ಮಲಗುತ್ತೀರಿ?

.26ನೀವು ದಿನಕ್ಕೆ ಎಷ್ಟು ಗಂಟೆಗಳ ಕಾಲ ನಿದ್ರೆ ಮಾಡುತ್ತೀರಿ ?

☐3-4 ಗಂಟೆಗಳು ☐ 4-5 ಗಂಟೆಗಳು ☐5-6 ಗಂಟೆಗಳು ☐>6 ಗಂಟೆಗಳು

.27ನೀವು ನಡೆಯುವುದು) ವಾಕಿಂಗ್(ಅಥವಾ ಯೋಗದಂತಹ ವ್ಯಾಯಾಮಗಳನ್ನು ಮಾಡುತ್ತೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

.28ನೀವು ವೈಯಕ್ತಿಕ ಅಥವಾ ವೃತ್ತಿಪರ ಒತ್ತಡವನ್ನು ಅನುಭವಿಸುತ್ತೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

ವಿಭಾಗ4

ಧ್ವನಿ ಆರೈಕೆ ಮಾಹಿತಿ

.29ನಿಮ್ಮ ಧ್ವನಿಯನ್ನು ನೀವು ದಿನಕ್ಕೆ ಎಷ್ಟು ಗಂಟೆಗಳ ಕಾಲ ಬಳಸುತ್ತೀರಿ?

☐ 2>ಗಂಟೆಗಳು ☐ 4-2 ಗಂಟೆಗಳು ☐ 6-4ಗಂಟೆಗಳು ☐ 6< ಗಂಟೆಗಳು

.30ನಿಮ್ಮ ವೃತ್ತಿಗೆ ಅತಿಯಾದ ಧ್ವನಿ ಬಳಕೆಯ ಅಗತ್ಯವಿದೆ ಎಂದು, ನೀವು ಭಾವಿಸುತ್ತೀರಾ ?☐ಹೌದು ☐ ಇಲ್ಲ

.31ನಿಮ್ಮ ಧ್ವನಿ ಬದಲಾವಣೆಯಾಗುವುದನ್ನುಗಮನಿಸಿದಾಗ ನಿಮಗೆ ಚಿಂತೆಯಾಗುತ್ತದೆಯೇ?

☐ಹೌದು ☐ಇಲ್ಲ

ಹೌದು ಎಂದಾದರೆ ,ಏಕೆ?

.32ನಿಮ್ಮ ಧ್ವನಿಯನ್ನುಕಾಪಾಡಿಕೊಳ್ಳಲು ನೀವು ಯಾವ ಕ್ರಮಗಳನ್ನು ತೆಗೆದುಕೊಳ್ಳುತ್ತೀರಿ?

.33ನಿಮ್ಮ ಧ್ವನಿ ದಣಿದಾಗ ,ನೀವು ಸಾಮಾನ್ಯವಾಗಿ ಏನು ಮಾಡುತ್ತೀರಿ?

.34ನಿಮ್ಮ ಧ್ವನಿಯನ್ನು ಸುಧಾರಿಸಲು ನೀವು ಯಾವುದೇ ತ್ವರಿತ ಮನೆಮದ್ದುಗಳನ್ನು ಬಳಸುತ್ತೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

ಹೌದು ಎಂದಾದಲ್ಲಿ ,ನೀವು ಬಳಸುವ ಯಾವುದೇ ಪರಿಹಾರಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.

.35ನೀವು ಸಕ್ರಮ ಧ್ವನಿ ವ್ಯಾಯಾಮದಲ್ಲಿ ತೊಡಗುತ್ತೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

ಹೌದು ಎಂದಾದಲ್ಲಿ ,ನೀವು ಮಾಡುವ ವ್ಯಾಯಾಮಗಳ ವಿಧಗಳನ್ನು ವಿವರಿಸಿ.

.36ಧ್ವನಿ ಸಂಬಂಧಿತ ಸಮಸ್ಯೆಗಳ ಬಗ್ಗೆ ನಿಮಗೆ ತಿಳಿದಿದೆಯೇ?

☐ಹೌದು ☐ಇಲ್ಲ

.37ನಿಮಗೆ ಯಾವುದೇ ಧ್ವನಿ ಸಮಸ್ಯೆಗಳಿವೆ ಎಂದು ನೀವು ಭಾವಿಸುತ್ತೀರಾ?

☐ಹೌದು ☐ಇಲ್ಲ

38."ನಿಮಗೆ ಧ್ವನಿ ಸಮಸ್ಯೆ ಇದೆ" ಎಂದು ನೀವು ಯಾವಾಗ ಭಾವಿಸುತ್ತೀರಿ?

.39ನಿಮಗೆ ಧ್ವನಿಯಲ್ಲಿ ತೊಂದರೆಯಾದರೆ ,ನೀವು ಯಾರನ್ನು ಸಂಪರ್ಕಿಸುತ್ತೀರಿ?

.40ನೀವು ಧ್ವನಿ ಸಮಸ್ಯೆಗಳನ್ನು ಅನುಭವಿಸುತ್ತಿದ್ದರೆ ,ವೈದ್ಯರನ್ನು ನೋಡಲು ನೀವು ಎಷ್ಟು ಸಮಯ ಕಾಯುತ್ತೀರಿ?

.41ನಿಮ್ಮ ಅಭಿಪ್ರಾಯದಲ್ಲಿ ಧ್ವನಿ ಸಮಸ್ಯೆಗಳನ್ನು ಉಂಟುಮಾಡುವ ಅಪಾಯದ ಅಂಶಗಳು ಯಾವುವು?

ವಿಭಾಗ5

ಧ್ವನಿ ಅಭ್ಯಾಸಗಳ ಮಾಹಿತಿ

.42ನೀವು ದೀರ್ಘ ನಿರಂತರ ಸಂಭಾಷಣೆಯಲ್ಲಿ ನಲ್ಲಿ ಪಾಲ್ಗೊಳ್ಳುತ್ತೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

.43ನೀವು ಜೋರಾಗಿ ಮಾತನಾಡುತ್ತೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

.44ನೀವು ಕಿರುಚುವುದು ಅಥವಾ ಕಿರುಚುವುದರಲ್ಲಿ ತೊಡಗುತ್ತೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

.45ನೀವು ನಿಮ್ಮ ಗಂಟಲನ್ನು ಸ್ವಚ್ಛಗೊಳಿಸುತ್ತೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

.46ನಿಮ್ಮ ಧ್ವನಿಯನ್ನು ಅನಗತ್ಯವಾಗಿ ಬಳಸುತ್ತಿದ್ದೀರಿ ಎಂದು ನೀವು ನಂಬುತ್ತೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

.47ನೀವು ಜೋರಾಗಿ ಹಾಡುವ ಅಭ್ಯಾಸವನ್ನು ಹೊಂದಿದ್ದೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

ವಿಭಾಗ6

ಧ್ವನಿ ರೋಗಲಕ್ಷಣಗಳ ಮಾಹಿತಿ

.48ನಿಮ್ಮ ವೃತ್ತಿ /ಉದ್ಯೋಗಕ್ಕೆ ತೊಂದರೆ ಮಾಡಿದ ಧ್ವನಿ ಸಮಸ್ಯೆಗಳ ಪ್ರಸಂಗಗಳನ್ನು ನೀವು ಹೊಂದಿದ್ದೀರಾ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

ಹೌದು ಎಂದಾದಲ್ಲಿ ,

1) ಯಾವ ರೀತಿಯ ಧ್ವನಿ ಸಮಸ್ಯೆಗಳು ?

2) ಈ ಧ್ವನಿ ಸಮಸ್ಯೆಯನ್ನು ನೀವು ಹೇಗೆ ನಿವಾರಿಸಿದಿರಿ?

.49ಈ ಕೆಳಗಿನ ಪಟ್ಟಿಯಲ್ಲಿರುವ ಯಾವುದೇ ಧ್ವನಿ ಸಮಸ್ಯೆಗಳನ್ನು ನೀವು ಅನುಭವಿಸುತ್ತೀರಾ?

ರೇಟ್ ಮಾಡಲು ದಯವಿಟ್ಟು ಸರಿಯಾದ ಚೆಕ್ ಬಾಕ್ಸ್ ಅನ್ನು ಟಿಕ್ ಮಾಡಿ

1) ಎಂದಿಗೂ ಇಲ್ಲ0 =
2) ಅಪರೂಪಕ್ಕೊಮ್ಮೆ1 =

3) ಕೆಲವೊಮ್ಮೆ 2 =
4) ಆಗಾಗ್ಗೆ3 =
5) ಯಾವಾಗಲೂ4 =

ಧ್ವನಿ ರೋಗಲಕ್ಷಣಗಳು	ಅಡುಗೆ ಮಾಡುವ ಮೊದಲು					ಅಡುಗೆ ಮಾಡುವಾಗ					ಅಡುಗೆ ಮಾಡಿದ ನಂತರ				
	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
ಒರಟುತನ															
ಧ್ವನಿ ಆಯಾಸ / ದಣಿವು															
ಧ್ವನಿಯಲ್ಲಿ ಬದಲಾವಣೆ															
ಧ್ವನಿ ಮುರಿಯುತ್ತದೆ/ಒಡೆಯುತ್ತದೆ ಅಥವಾ ಹಠಾತ್ ನಿಲ್ಲಿಸುತ್ತದೆ															
ಧ್ವನಿ ನಡುಗುತ್ತದೆ															
ಧ್ವನಿ ಇಲ್ಲದಂತಾಗಿರುವುದು															
ಮೃದುವಾಗಿ ಮಾತನಾಡಲು ತೊಂದರೆ															
ಜೋರಾಗಿ ಮಾತನಾಡಲು ತೊಂದರೆ															
ಕಡಿಮೆಯಾದ ಶ್ರುತಿ/ಸ್ವರದ ಮಟ್ಟ/ ಪಿಚ್ ಶ್ರೇಣಿ															
ಹೆಚ್ಚಿನ ಪಿಚ್ ನಲ್ಲಿ ಮಾತನಾಡಲು ತೊಂದರೆ															
ಕಡಿಮೆ ಪಿಚ್ ನಲ್ಲಿ ಮಾತನಾಡಲು ತೊಂದರೆ															
ಗಂಟಲು ಶುಷ್ಕತೆ/ ಒಣಗುವಿಕೆ															
ಗಂಟಲು ಕೆರತ															
ಗಂಟಲಿನಲ್ಲಿ ಉಸಿರುಗಟ್ಟುವಿಕೆ / ಚಕಿತ ಸಂವೇದನೆ															
ಗಂಟಲಿನಲ್ಲಿ ಉದ್ವೇಗ ಅಥವಾ ನೋವು															
ಪದೇ ಪದೇ ಕೆಮ್ಮು															
ಕಡಿಮೆ ಉಸಿರಾಟದ ಬೆಂಬಲ															
ಕಡಿಮೆ ಉಸಿರಾಡುವಿಕೆ															

ವಿಭಾಗ7

ವೈದ್ಯಕೀಯ/ಶಸ್ತ್ರಚಿಕಿತ್ಸೆಯ ಮಾಹಿತಿ

.50ನೀವು ಈ ಹಿಂದೆ ,ಯಾವುದೇ ಧ್ವನಿ ಸಮಸ್ಯೆ ಉಂಟಾಗಿ,ವೃತ್ತಿಪರರ ಸಹಾಯ ಪಡೆಯಬೇಕಾದಂತಹ ತೊಂದರೆ ಅನುಭವಿಸಿದ್ದೀರಾ ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

ಹೌದು ಎಂದಾದಲ್ಲಿ ,ಸಮಸ್ಯೆ)ಗಳು (ಮತ್ತು ಚಿಕಿತ್ಸೆ)ಗಳನ್ನು (ವಿವರಿಸಿ .

.51ನಿಮ್ಮ ಧ್ವನಿಯ ಮೇಲೆ ಪರಿಣಾಮ ಬೀರುವ, ಮರುಕಳಿಸು ವಂತಹ ಧ್ವನಿಯ ಸಮಸ್ಯೆಗಳಿಗೆ ನೀವು ಗುರಿಯಾಗುತ್ತೀರಾ?

☐ಹೌದು ☐ಇಲ್ಲ

.52ಅಧಿಕ ರಕ್ತದೊತ್ತಡ / ಮಧುಮೇಹ / ವ್ಯವಸ್ಥಿತ ಅಸ್ವಸ್ಥತೆ / ಆಮ್ಲೀಯತೆ)ಅಸಿಡಿಟಿ(ಗೆ ನೀವು ಔಷಧಿಗಳನ್ನು ತೆಗೆದುಕೊಳ್ಳುತ್ತೀರಾ ?

☐ಎಂದಿಗೂ ಇಲ್ಲ ☐ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ☐ಕೆಲವೊಮ್ಮೆ ☐ಆಗಾಗ್ಗೆ ☐ಯಾವಾಗಲೂ

ಹೌದು ಎಂದಾದಲ್ಲಿ ,ಅವುಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.

.53ನೀವು ಯಾವುದೇ ಥೈರಾಯ್ಡ್ ಸಮಸ್ಯೆಗಳನ್ನು ಹೊಂದಿದ್ದೀರಾ?

☐ಹೌದು ☐ಇಲ್ಲ

54. ನೀವು ಯಾವುದೇ ಹಾರ್ಮೋನುಗಳ ಸಮಸ್ಯೆಗಳಿಗೆ ಔಷಧೋಪಚಾರದಲ್ಲಿದ್ದೀರಾ?

☐ಹೌದು ☐ಇಲ್ಲ

APPENDIX – C

All India Institute of Speech and Hearing, Mysore- 570006

INFORMED CONSENT

Title: Vocal Problems and Voice Characteristics in Indian Chefs Who Use Monosodium Glutamate (MSG) in cooking: A Comparative Study

Information to the Participants:

Myself Thejas B, II MSc SLP is carrying out my dissertation titled "Vocal Problems and Voice Characteristics in Indian Chefs Who Use Monosodium Glutamate (MSG) in cooking: A Comparative Study," under the guidance of Dr. T. Jayakumar, Associate Professor, Department of Speech-Language Sciences, All India Institute of Speech and Hearing, Mysuru. This study aims to investigate the vocal problems and voice characteristics of Indian chefs who use Monosodium Glutamate in cooking. Upon agreeing to participate in this study, you will be asked to fill out a questionnaire probing various vocal characteristics; and will be asked to carry out a few phonation and reading tasks which will be audio recorded. The entire procedure will take approximately 15-20 minutes. No harm is anticipated on participating in this study.

Informed Consent:

I have been informed about the aims, objectives and the procedure of the study. The possible risks-benefits of my participation as human subject in the study are clearly understood by me. I understand that I have a right to refuse participation as subject or withdraw my consent at any time without. I have the freedom to write to Chairman, AEC, in (case of any violation of these provisions without the danger of my being denied any rights.

Signature of Participant **Signature of Investigator**

(Name and Address):

APPENDIX – D

ಅಖಿಲ ಭಾರತ ವಾಕ್ ಮತ್ತು ಶ್ರವಣ ಸಂಸ್ಥೆ, **ಮಾನಸಗಂಗೋತ್ರಿ**, **ಮೈಸೂರು**-570006

ಅಡುಗೆಯಲ್ಲಿ ಮೊನೊಸೋಡಿಯಂ ಗ್ಲುಟಮೇಟ್ (ಎಂಎಸ್ಜಿ) ಬಳಸುವ ಭಾರತೀಯ ಬಾಣಸಿಗರಲ್ಲಿ ಧ್ವನಿ ಸಮಸ್ಯೆಗಳು ಮತ್ತು ಧ್ವನಿ ಗುಣಲಕ್ಷಣಗಳು: ಒಂದು ತುಲನಾತ್ಮಕ ಅಧ್ಯಯನ

ಅಖಿಲ ಭಾರತ ವಾಕ್ ಮತ್ತು ಶ್ರವಣ ಸಂಸ್ಥೆ **(AIISH)**ನಲ್ಲಿ ಜೈವಿಕ-ವರ್ತನೆಯ ಸಂಶೋಧನಾ ಯೋಜನೆಗಳಲ್ಲಿ ತೊಡಗಿರುವ ಮಾನವ ಪ್ರಯೋಗಾರ್ಥಿಗಳಿಂದ ಮಾಹಿತಿಯುತ ಸಮ್ಮತಿ

ಸ್ಪರ್ಧಿಗಳಿಗೆ ಮಾಹಿತಿ:

ತೇಜಸ್ ಬಿ, ಆದ ನಾನು ಸ್ನಾತಕೋತ್ತರ **2nd MSC SLP((**ಸ್ಪೀಚ್ ಲ್ಯಾಂಗ್ವೇಜ್ ಪ್ಯಾಥೋಲಜಿ/ವಾಕ್ ಮತ್ತು ಭಾಷೆ ರೋಗಶಾಸ್ತ್ರ**)** ವ್ಯಾಸಾಂಗ ಮಾಡುತ್ತಿದ್ದು , ಮೈಸೂರಿನ ಅಖಿಲ ಭಾರತ ವಾಕ್ ಮತ್ತು ಶ್ರವಣ ಸಂಸ್ಥೆಯ ವಾಕ್-ಭಾಷಾ ವಿಜ್ಞಾನ ವಿಭಾಗದ ಸಹಾಯಕ ಪ್ರಾಧ್ಯಾಪಕ ಡಾ.ಟಿ.ಜಯಕುಮಾರ್ ಅವರ ಮಾರ್ಗದರ್ಶನದಲ್ಲಿ "ಅಡುಗೆಯಲ್ಲಿ ಮೊನೊಸೋಡಿಯಂ ಗ್ಲುಟಮೇಟ್ **(**ಎಂಎಸ್ಜಿ**)** ಬಳಸುವ ಭಾರತೀಯ ಬಾಣಸಿಗರಲ್ಲಿ ಧ್ವನಿ ಸಮಸ್ಯೆಗಳು ಮತ್ತು ಧ್ವನಿ ಗುಣಲಕ್ಷಣಗಳು**:** ಒಂದು ತುಲನಾತ್ಮಕ ಅಧ್ಯಯನ" ಎಂಬ ಶೀರ್ಷಿಕೆಯಡಿ ನನ್ನ ಪ್ರಬಂಧವನ್ನು , ನಡೆಸುತ್ತಿದ್ದೇನೆ . ಈ ಅಧ್ಯಯನವು ಅಡುಗೆಯಲ್ಲಿ ಮೊನೊಸೋಡಿಯಂ ಗ್ಲುಟಮೇಟ್ ಬಳಸುವ ಭಾರತೀಯ ಬಾಣಸಿಗರ ಧ್ವನಿ ಸಮಸ್ಯೆಗಳು ಮತ್ತು ಧ್ವನಿ ಗುಣಲಕ್ಷಣಗಳನ್ನು ತನಿಖೆ ಮಾಡುವ ಗುರಿಯನ್ನು ಹೊಂದಿದೆ. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ಒಪ್ಪಿದ ನಂತರ, ವಿವಿಧ ಧ್ವನಿ ಗುಣಲಕ್ಷಣಗಳನ್ನು ಪರಿಶೀಲಿಸುವ ಪ್ರಶ್ನಾವಳಿಯನ್ನು ಭರ್ತಿ ಮಾಡುವಂತೆ ನಿಮ್ಮನ್ನು ಕೇಳಲಾಗುತ್ತದೆ**;** ಮತ್ತು ಆಡಿಯೊ ರೆಕಾರ್ಡ್ ಮಾಡಲಾದ ಕೆಲವು ಉಚ್ಚಾರಣೆ**(**ಫೋನೇಶನ್**)** ಮತ್ತು ಓದುವ ಕಾರ್ಯಗಳನ್ನು ನಿರ್ವಹಿಸಲು ಕೇಳಲಾಗುತ್ತದೆ. ಸಂಪೂರ್ಣ ಕಾರ್ಯವಿಧಾನವು ಸರಿಸುಮಾರು **15-20** ನಿಮಿಷಗಳನ್ನು ತೆಗೆದುಕೊಳ್ಳುತ್ತದೆ. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವುದರಿಂದ ಯಾವುದೇ ಹಾನಿಯನ್ನು ನಿರೀಕ್ಷಿಸಲಾಗುವುದಿಲ್ಲ.

ಮಾಹಿತಿಯುತ ಸಮ್ಮತಿ

ಅಧ್ಯಯನದ ಉದ್ದೇಶಗಳು**,** ಮತ್ತು ಕಾರ್ಯವಿಧಾನದ ಬಗ್ಗೆ ನನಗೆ ತಿಳಿಸಲಾಗಿದೆ. ಅಧ್ಯಯನದಲ್ಲಿ ಮಾನವ ಪ್ರಯೋಗಾರ್ಥಿಯಾಗಿ ನನ್ನ ಭಾಗವಹಿಸುವಿಕೆಯ ಸಂಭಾವ್ಯ ಅಪಾಯಗಳು-ಪ್ರಯೋಜನಗಳನ್ನು ನಾನು ಸ್ಪಷ್ಟವಾಗಿ ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ. ಪ್ರಯೋಗಾರ್ಥಿಯಾಗಿ ಭಾಗವಹಿಸುವಿಕೆಯನ್ನು ನಿರಾಕರಿಸುವ ಅಥವಾ ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ನನ್ನ ಸಮ್ಮತಿಯನ್ನು ಹಿಂತೆಗೆದುಕೊಳ್ಳುವ ಹಕ್ಕನ್ನು ನಾನು ಹೊಂದಿದ್ದೇನೆ ಎಂದು ನಾನು ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ. ಈ ನಿಬಂಧನೆಗಳ ಯಾವುದೇ ಉಲ್ಲಂಘನೆಯ ಸಂದರ್ಭದಲ್ಲಿ , ನನ್ನ ಯಾವುದೇ ಹಕ್ಕುಗಳನ್ನು ನಿರಾಕರಿಸುವ ಅಪಾಯವಿಲ್ಲದೆ **AEC (**ಎಇಸಿ **)**ಅಧ್ಯಕ್ಷರಿಗೆ/ ಮಾರ್ಗದರ್ಶಿಗೆ**,** ಪತ್ರ ಬರೆಯುವ ಸ್ವಾತಂತ್ರ್ಯ ನನಗಿದೆ ಎಂದು ತಿಳಿದಿದ್ದೇನೆ . ನಾನು ಯಾವುದೇ ಕಟ್ಟುಪಾಡುಗಳಿಗೆ ಒಳಗಾಗದೆ ಹೃದಯಪೂರ್ವಕ ಒಪ್ಪಿಗೆಯನ್ನು ನೀಡುತ್ತಿದ್ದೇನೆ

ಭಾಗವಹಿಸುವವರ ಸಹಿ ಪರಿಶೋಧಕರ ಸಹಿ

(ಹೆಸರು ಮತ್ತು ವಿಳಾಸ**)**