

**ADAPTATION, TRANSLATION AND VALIDATION OF SPEECH,  
SPATIAL AND QUALITIES OF HEARING (SSQ) IN  
MALAYALAM SPEAKING OLDER ADULTS WITH HEARING  
IMPAIRMENT**

**MOHAMMED BASIH THAHA T  
Register Number: 18AUD024**

**This Dissertation is submitted as part fulfilment  
For the Degree of Master of Science in Audiology  
University of Mysore, Mysuru**



**ALL INDIA INSTITUTE OF SPEECH AND HEARING  
MANASAGANGOTTHRI, MYSURU – 570 006**

**JULY 2020**

**CERTIFICATE**

This is to certify that this dissertation entitled “**Adaptation, Translation and Validation of Speech, Spatial and Qualities of Hearing Scale (SSQ) in Malayalam Speaking Older Adults with Hearing Impairment**” is the bonafide work submitted in part fulfilment for the degree of Master of Science (Audiology) of the student Registration Number: 18AUD024. This has been carried out under the guidance of the faculty of the institute and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

Mysuru  
July 2020

**Prof. M. Pushpavathi**  
**Director**  
All Indian Institute of speech and Hearing  
Manasagangothri, Mysuru-570006

**CERTIFICATE**

This is to certify that this dissertation entitled “**Adaptation, Translation and Validation of Speech, Spatial and Qualities of Hearing Scale (SSQ) in Malayalam Speaking Older Adults with Hearing Impairment**” has been prepared under my supervision and guidance. It is also being certified that this dissertation has not been submitted earlier to any other University for the award of any other Diploma or Degree.

Mysuru  
July 2020

**Dr. K. Rajalakshmi**  
**Guide**  
Professor in Audiology  
All India Institute of Speech and Hearing  
Manasagangothri, Mysuru-570006

## DECLARATION

This is to certify that this dissertation entitled “**Adaptation, Translation and Validation of Speech, Spatial and Qualities of Hearing Scale (SSQ) in Malayalam Speaking Older Adults with Hearing Impairment**” is the result of my own study under the guidance of Dr. K. Rajalakshmi, Professor in Audiology, Department of Audiology, All India Institute of Speech and Hearing, Mysore, and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

Mysuru  
July 2020

**Register No. 18AUD024**

*In the name of God, The Most*

*Beneficent, The Most Merciful*

## Acknowledgment

*By submitting this dissertation, I give a full stop to my formal education, realizing that learning doesn't end up with the formal education, rather it's a continuous process throughout the life.*

*From KG to PG, from learning alphabets to formal research writings – that was really a long 20 years of education and infact the 20<sup>th</sup> academic year was quite long though. When I was working on this dissertation in this corona pandemic era, so many faces and incidents came to my mind, which deeply influenced in forming myself. Each person comes to our life for a reason, each incident that happened in our life has some or other lesson to teach us, if we look into that.*

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*Thank God, The Almighty !!*

## Abstract

The self-reported outcomes along with the objective hearing assessment gives a better idea about the actual impact of hearing loss on one's quality of life. And as age progresses, this tend to deteriorate. Among the self-assessment tools available, SSQ assess various listening conditions extensively through 49 items distributed in 3 subscales namely speech, spatial and qualities of hearing. The aim of the present study is to adapt the originally developed SSQ to Indian context and to translate to Malayalam and validate it on elderly individuals with hearing impairment. Participants for the study included 30 elderly individuals (Age: 45 – 60 years) with hearing impairment. All the participants were native Malayalam language speakers and were literates. After adapting the SSQ items according to Indian context, the questionnaire was translated to Malayalam with the help of linguist and suitable modifications were made by an audiologist. Later it was administered on all the participants. Descriptive statistics was done along with the internal consistency was assessed through Cronbach's alpha coefficient. The speech subscale items' score was found to be poorer and quality subscale had the best score. The questions had good inter-item correlations and Cronbach's  $\alpha$  value was 0.95, which indicates good internal consistency.

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## **Chapter 1**

### **Introduction**

The approach towards health and disability is dynamically changing day by day. According to the World Health Organization (WHO, 2011), “disability is not a person's characteristic, but instead disability arises from the interactions of health conditions with contextual factors – environmental and personal factors.” This bio-psycho-social framework influenced the way health and disability are understood and measured. Hence, the World Health Organization has recommended new tools and measurement approaches. These include the design and use of Quality of Life measures to comprehend individuals with disabilities' real-life experiences. According to Dobie and Van Hemel (2005), quality of life is a “concept that encompasses physical, psychological, social, and environmental aspects of an individual’s life.” Quality of Life is a global construct even without any disability, and it will be more in individuals with a disability.

Hearing impairment is one of the most prevalent disabilities in older adults, affecting from 35% to 45% of adults, aged 50 years and older (Cruickshanks et al., 1998; Reuben et al., 1998). Hearing impairment is connected with serious psychosocial impacts, including lower quality of life and well-being, poorer mood and depression, social isolation, and poorer physical and self-sufficiency (Appollonio et al., 1996). The management option currently available for permanent hearing loss are amplification devices such as hearing aids, cochlear implants, etc. If the patient is not using such

devices, it can lead to many difficulties in day-to-day life and thus affects the quality of life. The uncorrected hearing loss can lead to problems in recognizing speech, which can cause communication problems, reduced ability to detect, identify, and localize sounds quickly and reliably. These can affect not only the hearing impaired people but also other people in their environment, such as family members, fellow workers, etc. As a consequence, hearing loss gives rise to poorer quality of life-related to isolation, reduced social activity, and a feeling of being excluded, which can lead to an increased symptoms prevalence of symptoms of depression (Arlinger, 2003). Thus, it is important to assess the impact of hearing impairment on quality of life in individuals with hearing impairment.

### **1.1 Need for the study**

Any health care professional's main function is to enhance the client's quality of life. A questionnaire on the assessment of quality of life due to hearing impairment is used at different phases of the intervention process (Ebrahim, 1995). There are several outcome measurement tools available for Western population like the Hearing handicap inventory for the elderly (HHIE), Client-oriented scale of improvement (COSI), Satisfaction with amplification in daily life (SADL), International outcome inventory – Hearing aids (IOI-HA), Hearing handicap questionnaire (HHQ), Self-assessment of communication (SAC). However, self-report quality of life questionnaires is not available in all the languages in a developing country like India. Also, there are few questionnaires which need adaptation according to the Indian context. Thus, there is a need to translate and adapt quality of life questionnaires in different Indian languages.

The Speech, Spatial, and Qualities of Hearing Scale (SSQ) are designed to measure a range of hearing disabilities across several domains. It assesses a listener's subjective experience of hearing disability and attempts to quantify spatial hearing abilities in realistic listening situations, with a particular focus on binaural hearing. It has three subscales namely i) Speech scale- measures the ability of an individual to hear speech in a variety of listening contexts; ii) Spatial scale- measures ability to localize acoustic events and judge auditory motion and distance; iii) Quality scale – to assess the listening experiences in terms of listening effort, clarity and naturalness of sound, segregation, music perception, and auditory inhibition (Stuart Gatehouse & William Noble, 2004). The questionnaire has few questions which do not apply to Indian context such as ‘...you hear someone using a lawnmower.....’, ‘... room with echoes such as a church...’. Thus, it is essential that the questionnaire is adapted and translated to Indian language.

Malayalam is one amongst the 22 official languages of the country and spoken in the Indian state of Kerala and union territories such as Lakshadweep, and Mahe. There are around 35 million people who speak Malayalam language only in India, and there are immigrants in other nations as well who speak Malayalam. Considering the large population, translating the questionnaire in Malayalam can benefit individuals with hearing impairment who have Malayalam as their mother tongue. Thus, the present study would attempt to translate and adapt Speech, Spatial, and Qualities of Hearing Scale (SSQ) questionnaire in Malayalam language. It will also be attempted to administer the questionnaire on Malayalam speaking older adults with hearing impairment.

## **1.2 Aim of the study**

The aim of this study is to translate and adapt Speech, Spatial, and Qualities of Hearing Scale (SSQ) questionnaire in Malayalam speaking older adults with hearing impairment.

## **1.3 Objectives of the study**

1. To adapt Speech, Spatial, and Qualities of Hearing Scale (SSQ) questionnaire to suit Indian population.
2. To translate Speech, Spatial, and Qualities of Hearing Scale (SSQ) questionnaire to Malayalam.
3. To validate the questionnaire by assessing the quality of life with the translated questionnaire in Malayalam speaking older adults with hearing impairment.

## Chapter 2

### Review of Literature

The human auditory system is proficient in detecting, sensing and discriminating various amount of sound within its hearing range, estimates the direction, distance and the location of sound source, and perceives the quality of sounds. Furthermore, individual is skilled to recognize and understand an auditory event, spot a change in his surroundings or even to monitor and control own speech. But understanding the speech or to communicates with one another, stands out to be the title role of the auditory system. All these character of auditory system helps one to survive and to communicate in his daily life.

All these characters of the system go ineffective, if an individual is affected by hearing loss. The hearing loss hinders one's communication by making it harder for them to hear, listen or even to understand the speech. All these losses can be restored by providing an auditory rehabilitation. The primary goal of the auditory rehabilitation is to reduce the constraints in the understanding of speech in the individuals with hearing impairment. They provide different modes of amplification devices that aims at enhancing the comprehension of speech in various listening situations. While setting up a program for the amplification of a hearing device it is necessary to know the listening needs of the individual. Because individual may interact with others in many situations, which may not be always the same in terms of acoustics and the presence of the

background noise. Thus, hearing and listening are essential elements of hearing assessment and setting rehabilitation goals for both understanding and communication. Test batteries used in the comprehensive hearing assessment are effective in the quantification of the degree of the hearing loss, but it doesn't give information about the communication difficulties which hearing impaired individuals have gone through in their daily life. As hearing loss, prevents the major chunk of information during conversation and thus communication, the person with hearing impairment tend to efface from the society and causes quality of life to deteriorate. This accounts for the use of other tools that are easy to apply in routine clinical practice while conducting the hearing assessment and setting a rehabilitation plan for the hearing impaired. Self-report questionnaire with known psychometric properties can be used to measure the actual disability faced by the individual in his real world.

Therefore, many self-report instruments were developed to document the patient view in the evaluation of rehabilitation services (Bentler & Kramer, 2000). Here the patient can be asked to make direct assessment of one's disability.

The various scales that have been used widely are listed in the table 1.

Table 2.1

*List of details of questionnaires assessing hearing disability or hearing handicap*

<b>Hearing Disability Profile</b>	<b>Questionnaire</b>	<b>Authors</b>	<b>Year</b>
<b>HHS</b>	Hearing Handicap Scale	High, Fairbanks, and Glorig	1964



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<b>HPI</b>	Hearing Performance Inventory	Giolas, Owens, Lamb and Schubert	1979
<b>HHIE</b>	Hearing Handicap Inventory for Elderly	Ventry and Weinstein	1982
<b>HHIE-S</b>	Hearing Handicap Inventory for Elderly- Screening	Ventry and Weinstein	1983
<b>RHPI</b>	Revised Hearing Performance Inventory	Giolas, Owens, Lamb and Schubert	1983
<b>M-A Scale</b>	Mc Carthy-Alpiner Scale of Hearing Handicap	Mc Carthy and Alpiner	1983
<b>HHIE-SP</b>	Hearing Handicap Inventory for Elderly for Spouse	Newmao and Weinstein	1986
<b>CPhi</b>	Communication Profile for the Hearing Impaired	Demorest and Erdman	1987
<b>HHIA</b>	Hearing Handicap Inventory for Adults	Newmao, Weinstein, Jacobson and Hug	1990
<b>CSOA</b>	Communication Scales for Older Adults	Kaplan and Bailly	1997
<b>SSQ</b>	Speech, Spatial and Qualities of Hearing Scale	Gatehouse and Noble	2004

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## 2.1 About SSQ

It was Noble, and his colleagues in 2002 developed the SSQ questionnaire. But they began their work at 1995 and developed a part of this question. The SSQ was developed to understand the communication difficulties of a hearing impaired in different listening conditions. The SSQ assess the following domains of hearing: 1) Speech hearing, 2) Spatial hearing, and 3) Qualities of hearing. This questionnaire contains 49 questions out of which 14 questions are under the speech hearing domain, 17 in the spatial hearing domain, and 18 in other functions and qualities of the hearing domain. The first part of the questionnaire is designed in such a way that it covers a realistic range of speech hearing context extensively. It involves the effect of competing sound, the number of talkers in a conversation, the visibility of other people, and the different listening conditions (quiet, steady noise, reverberation, the involvement of other noises). All these addresses functions that are likely to implicate the importance of binaural system that draws attention to the binaural emphasis on selective, divided and rapidly shifting attention such as ignoring one voice while attending to another, following two speech streams at the same time, or following conversation that switches quickly from one person to another. In the following section of the questionnaire, spatial hearing represents the directional, distance judgment, and movement of the sound. Temporal dynamics specify spatial dynamics. Indeed, temporal dynamics are linked to many daily auditory scenarios: variation in the patterns of loudness shows features such as vocal emphasis or change of emotional tone. This part includes reference to the externality of sounds – do they sound like ‘out there’ or ‘in the head’? These items refer more to listening with hearing aids, especially with the earmolds, where it leads to

occlusion. Hence it is relevant to use SSQ post-fitting of hearing aids. The final part, 'other qualities' of hearing, comprises of items representing the issues of naturalness/ clarity, ease of listening, recognition, and segregation of sounds. On segregation, the questions were about the simultaneous sounds being experienced as separate entities or jumbled together. Questions on clarity naturalness are about every day experience to sounds, voices of others, and the naturality of their own voice. Easiness of listening questions inquired about difficulties in following a conversation or to ignore competing noise. Each of the items has eleven response choices from 0 to 11, using ruler representation. The left-hand side of the scale reflects lowest score viz., 0, represents complete absence or complete inability of a particular listening scenario, and the right-hand side reflects the highest score viz., 10, represents the complete presence or complete ability. Thus, resultant highest scores always show the lesser disability and lowest score the most top disability.

### **2.1.1 Studies on SSQ**

Speech Spatial and Qualities of hearing scale was developed by Gatehouse and Noble in 2004, to take into account the extent of hearing disabilities in different domains. SSQ was administered on 153 clients before their hearing aid fitting. The results revealed that they experienced the most considerable difficulty in simultaneous speech streams, ease of listening, listening in noise and groups, and judging distance and movement. These results showed that the experience of handicap has characters of the temporal and spatial dynamics of hearing disability. Thus SSQ shows as a promising

instrument for evaluating various kinds, especially those that implicate binaural function.

Gatehouse and Noble (2004) had done a comparative study of hearing disability and handicap on individuals with symmetric and asymmetric hearing loss. They administered SSQ on both the groups and found that all the domains in the questionnaire are severely affected in the group of asymmetric hearing loss.

Singh and Pichora-Fuller (2010) compared the SSQ performance of 40 older adults in self-administration and interview methods. They reported the test-retest reliability of those methods and found that in both the methods, the scores did not change systematically, even though the highest test-retest correlation ( $r=0.83$ ) was found in the interview method.

Kießling et al., (2011) translated SSQ to German language and evaluated in a multicenter study. They reported that translated version was having high internal consistency and can be used in routine clinical setups.

Banh, Singh, and Pichora-Fuller (2012) investigated the age effect of responses in SSQ with minimal audiometric loss. And found that younger adults had significantly higher scores compared to older adults. Thus, it highlights the importance of assessing hearing disability.

Demeester et al., (2012) derived a short form of SSQ, SSQ-5, comprises of 5 questions that can be used for screening purposes in clinical settings and found that SSQ-5 has an 89.6% correlation with original SSQ questionnaire.

Galvin and Noble (2013) adapted the SSQ questionnaire for the subjective assessment of hearing ability in cochlear implantees to the child, teacher, and parent

version. SSQ performance of bilateral cochlear implantees was higher than the unilateral implantees. Later in 2020, Killan et al., assessed the face and content validity of the parent version of SSQ when used in a clinical service without interviews or week-long observation. They found that the item response theory identified 13 items that performed poorly in information and discrimination domains. Hence, it is recommended to administer the questionnaire through interviews following three weeks of the observation period.

Noble et al., (2013) had come up with a short form of SSQ containing 12 questions to use in clinical research and rehabilitation settings. They found that SSQ 12 provided similar results as that of the original SSQ 49 version.

Heo et al., (2013) translated SSQ to the Korean language and used for assessing the bimodal benefit on subjective outcomes on adult cochlear implant users. Pearson's correlation revealed that scores among the three domains were significantly related to each other. Mean data of scores were speech domain has 49.59%, speech has 46.09%, and quality domain has 52.48%.

Ramos et al. (2014) adapted and translated the original version of SSQ questionnaire to the European Portuguese language. The translated version was administered on twelve participants and found that it is reliable and internal consistency is good.

Gonsalez and Almeida (2015) culturally adapted and translated SSQ to the Brazilian Portuguese language. The translated questionnaire was administered on 40 literate, normal hearing Brazilian adults. The final version of the translated SSQ showed better cultural equivalence with a high Cronbach's alpha coefficient ( $>0.8$ ). Later in

2019, Aguiar et al., determined its test-retest reliability on 35 individuals with hearing impairment, and results showed a moderate to strong correlation.

Mouline et al., (2015) culturally adapted and translated SSQ to the French language to assess its reproducibility across Dutch and English versions. It was administered on 100 individuals with normal hearing and 230 individuals with hearing impairment. They also validated the French version of SSQ. They reported having a good reproducibility of scores, and inter-subject variability was slightly lower for French than Dutch and original English versions of SSQ, which confirms its potential to evaluate the hearing disability with international standards.

Mouline and Richard (2016) validated the French version of the Spatial Hearing Questionnaire using SSQ. They investigated internal structure using cluster analysis and explored the construct validity of the questionnaire on 230 individuals with hearing impairment and 100 individuals with normal hearing. They concluded that there are similarities between the Spatial Hearing Questionnaire and the Spatial domain of the SSQ questionnaire. They also added that ecological validity was rated higher for SSQ.

Tufatulin and Artyushkin (2016) adapted the SSQ questionnaire to Russian language and validated it on 93 participants who were categorised as normal, hearing impaired with moderate and severe hearing loss. They reported that Russian version of Speech Spatial Qualities of Hearing questionnaire (SSQrus) had high reproducibility and thus it is highly reliable.

Lotfi et al., (2016) had come up with the psychometric study of the Iranian version of SSQ. They analyzed 333 elderly individuals with hearing impairment, among which 48.3% were users of hearing aid, and the rest of participants were not. The

reliability evaluation reveals high internal consistency and excellent test-retest reliability.

Quara et al., (2019) adapted and translated to Malay language and administered it to 50 adult hearing aid users and found that with high internal consistency, with the Cronbach's alpha value of 0.97. They also inferred that age, degree of hearing loss, and hearing aid experience does not correlate with the disability of hearing.

Shetty, Palaniappan et al., (2019) derived localization questionnaires from SSQ and other questionnaires to the Kannada language. They validated the translated questionnaire by assessing the degree of error in the localization tasks. They found that, as age advances, there is a significant reduction in localization ability and a high degree of errors in the localization tasks.

Sánchez et al., (2020) culturally adapted and translated SSQ to Colombian Spanish language from Brazilian Portuguese. Cronbach's alpha value (0.93) indicated that the final translated version is reliable and of the same construct.

From the studies mentioned above, it is clear that SSQ is a reliable and valid tool to assess hearing disability and its impact on one's quality of life. It has an inevitable disadvantage of little time consuming due to its length, but it assesses different real-life listening condition extensively. The questionnaire is now available in many languages and found to have good internal consistency and inter-item correlation. Also, various studies report that SSQ is can be used in different age groups as well as different population such as hearing aid users and cochlear implant users. Hence SSQ is a best option for an audiologist to administer it on individuals with hearing impairment for checking their quality of life.

When consider India, it is a highly populated country with the population of 135 crore who live in different culture and speak different languages. Hence it is necessary to develop test materials or questionnaires to the native languages. Also, it will help researchers and health care professionals such as audiologists to compare the results across the nation and uniformity can be maintained. The original, 49-questioned SSQ questionnaire has not been adapted or translated to any of the Indian languages. The present study is an effort to adapt the SSQ questionnaire to Indian context and to translate it to Malayalam language, which is a regional language spoken by natives in the southern Indian state, Kerala and Lakshadweep.



## Chapter 3

### Method

#### 3.1 Participants

The study was conducted on a minimum of 30 individuals in the age range of 40 to 65 years.

##### *3.1.1 Participants Selection Criteria*

The participants fulfilling the following criteria were recruited for the study.

1. *Native language (Malayalam)* –The participants were native speakers of Malayalam language. Only literate participants, at least with secondary education in Malayalam, were selected for the study, as it is necessary for the participants to fill the questionnaire by themselves.
2. *Hearing Loss* – Participants having bilateral mild to moderately severe sensorineural hearing loss were taken for the study
3. *The onset of Hearing loss* – Onset of hearing loss must be with six months to 2 years.

*Exclusion Criteria:* Individuals who have associated problems or comorbid conditions such as any conductive pathology, psychological disorder, or any other communication problem were excluded from the study.

## 3.2 Procedure

The study aimed to adapt, translate and validate Speech, Spatial, and Qualities of Hearing Scale (SSQ) questionnaire in Malayalam language. The method included the following steps:

1. Adaptation of Speech, Spatial, and Qualities of Hearing Scale (SSQ) questionnaire
2. Translation of the questionnaire
3. Validation of the questionnaire,

### *3.2.1 Stage 1: Adaptation of SSQ Questionnaire*

The first step of the study was obtaining consent from the authors who developed SSQ questionnaire. This was done before the adaptation of the questionnaire. Adaptation is comprised of reviewing, revising and appropriately adapting the questionnaire. The questions that are not culturally and socially acceptable were removed and substituted by more relevant questions by two experienced audiologists with minimum of 5-6 years of experience in clinical research.

### *3.2.2 Stage 2: Translation of SSQ*

1. **Forward translation:** English adapted original version of SSQ was translated to Malayalam by three educated individuals who are well versed in the academic discipline and have the Malayalam language as their first language. Translators were instructed to aim at the conceptual equivalent of a word or phrase, not a word-for-word translation, i.e. not a literal translation. They should consider the

definition of the original term and attempt to translate it in the most relevant way. Following were the instructions given to the translators:

- Translators should strive to be simple, clear and concise in formulating a question.
- Long sentences with many clauses should be avoided.
- The target language should aim for the most common audience. Translators should avoid addressing professional audiences. They should consider the typical respondent for the instrument being translated and what the respondent will understand when s/he hears the question.
- Translators should consider issues of gender and age applicability and avoid any terms that might be considered offensive to the target population.

**2. Expert Panel:** A panel of three individuals who are bilingual (in English and Malayalam) were constituted. They were proficient in both the languages. The goal in this step was to identify and resolve the inadequate expressions/concepts of the translation, as well as any discrepancies between the forward translation and the existing or comparable previous versions of the questions if any. The expert panel might question some words or expressions and suggest alternatives. The result of this process produced a complete translated version of the questionnaire.

**3. Backward Translation:** Using the same approach as that outlined in the first step, the instrument was then translated back to English by an independent translator, who had no knowledge of the questionnaire. As in the initial

translation, emphasis in the back-translation was on conceptual and cultural equivalence, and not linguistic equivalence. Discrepancies between the forward and backward translation were discussed with the participants included in the previous steps and necessary modifications were done as many times as needed until a satisfactory version was reached.

4. **Pretest:** A pretest was carried on five participants of the target population, that is, five older adults with hearing impairment. The inclusion and exclusion criteria for selecting participants in this step were same as given in Stage III. The questionnaires were given to the participants and they were asked to read, understand and interpret the questions. If there are questions or difficulties, respondents could propose more understandable sentences or terms and compatible with their realities. Suggested changes in the pretest were returned to the experts, who re-discussed and reformulated the confusing items and the final questionnaire was prepared

### ***3.2.3 Stage 3: Validation of translated questionnaires***

Participants were given Malayalam translated version of SSQ to measure the extent of hearing disabilities across several situations. It has 49 questions to assess three different domains: i) Speech Hearing; ii) Spatial Hearing; iii) Quality Hearing. These questions were answered by the participant.

Each question has an 11-point rating scale from 0 to 10, wherein ten means participant agrees perfectly, and zero means not at all agree to the situation described in the question. The questionnaire was given to participants in a one-to-one interview. The

participants had to tick the most suitable/appropriate option out of it. Participants had to read the questionnaire and mark appropriately by themselves and return it to the researcher.

The same procedure was followed after 15 days of the initial test (50% of the participants), to examine the test-retest reliability.

## Chapter 4

### Results and Discussion

The aim of the present study was to adapt, translate and validate SSQ questionnaire in Malayalam speaking population. The data was collected from 30 participants in the age range of 40 to 65 years. The translated questionnaire was administered on all the participants. Each item was scored from 0 to 10 indicating worst hearing to best hearing experience, and higher overall score indicates the best quality of life. The SPSS software version 20 was used for the item-wise statistical analysis.

Table 4.1 provides the frequency of speech subscale in Malayalam-SSQ scores of the current sample. The mean value of the overall scoring was 4.58. Lowest mean was scored for item 14 (M= 3) and highest mean was scored for item 2 (M= 7.13). Table 4.2 gives information about the frequency of spatial subscale. Overall mean of spatial subscale was 5.18. Lowest scoring was for item 9 (M= 4.10) and highest for item 3 (M= 6.27). Similarly, table 4.3 is illustrated with frequency distribution of quality subscale, which had overall mean of 5.515. Item 16 showed lowest scoring (M= 2.93) and item 6 scored the highest (M= 6.90). In all the 3 subscales, most of the scoring was observed between 4 and 6.

Table 4.1

*Frequency distribution of Speech domain of SSQ*

Items	Rating Scale										
	0	1	2	3	4	5	6	7	8	9	10
Q1		2	3	2	5	5	2	9	4		
Q2					1	8	4	3	3	9	2
Q3			3	2	5	3	5	9	2	1	
Q4		1	3	4	5	4	8	3	2		
Q5		2	8	3	5	8	2	2			
Q6	1	4	7	5	3	5	4	1			
Q7		2	7	3	4	8	5	1			
Q8			1	2	8	3	4	8	3	1	
Q9			2	7	2	4	3	9	3		
Q10	2	3	5	4	3	8	2	2	1		
Q11		2	7	3	10	3	2	2	1		
Q12	2	3	5	1	4	9	2	4			
Q13		2	2	1	5	9	4	3	2	2	
Q14	2	6	7	5	6	1	2	2			

Table 4.2

*Frequency distribution of Spatial domain of SSQ*

Items	Rating Scale										
	0	1	2	3	4	5	6	7	8	9	10
Q1		2	4	4	4	4	5	3	4		
Q2		1	3	3	3	9	4	3	3	1	
Q3			1	2	2	5	7	5	4	2	2
Q4			2	7	3	4	5	4	3	2	
Q5			2	3	5	4	7	5	3	1	
Q6			1	4	4	3	4	9	4	1	
Q7		2	5	3	2	2	3	7	5	1	
Q8	2	5	2	4	3	2	9	2	1		
Q9	2	5	3	4	2	3	2	7	2		
Q10		2	2	6	5	4	2	7	3	1	
Q11		1	1	4	4	5	6	5	2	2	
Q12		2	3	5	3	5	6	4	2		
Q13		1	1	7	3	3	4	6	3	2	
Q14			1	3	4	5	3	4	5	3	2
Q15		2	4	3	4	3	3	5	4	2	
Q16			3	5	4	3	2	6	5	2	
Q17		1	2	2	5	3	7	4	4	2	

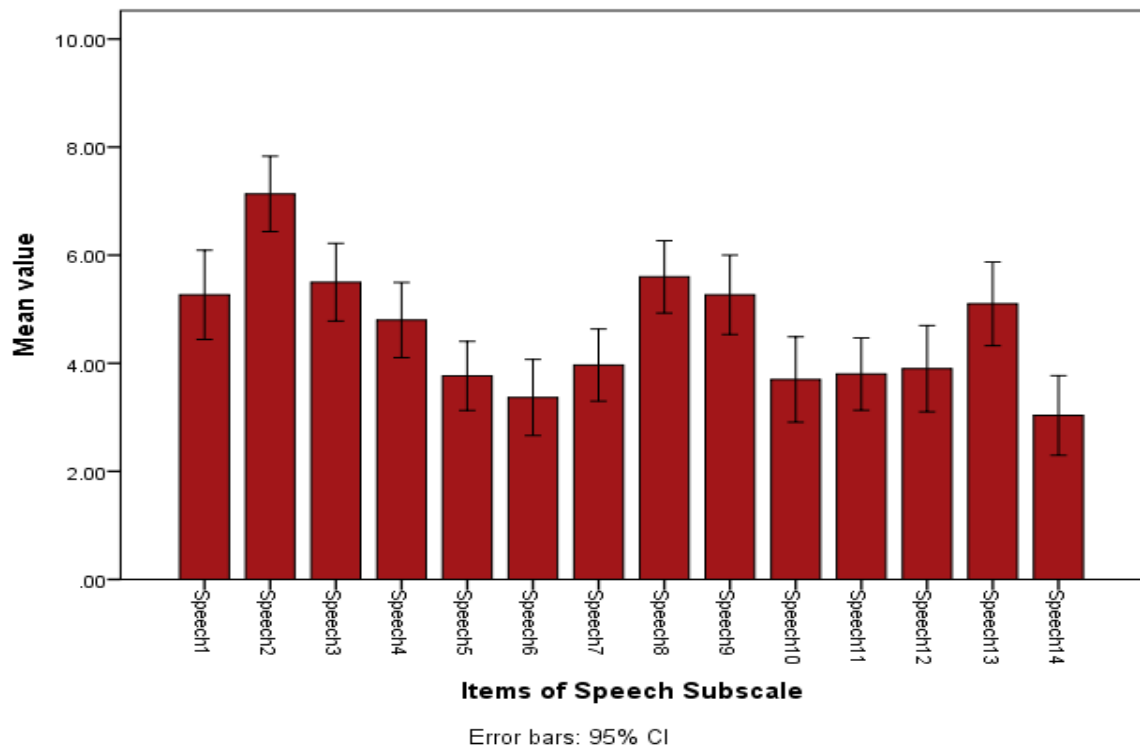


Table 4.3

*Frequency distribution of Qualities domain of SSQ*

Items	Rating Scale										
	0	1	2	3	4	5	6	7	8	9	10
Q1				2	3	5	9	4	3	2	2
Q2				3	2	5	7	5	3	2	3
Q3				1	4	4	5	7	4	2	3
Q4			1	5	6	5	5	3	3	2	
Q5		4	6	1	3	4	3	4	6		
Q6					5	3	5	3	9	3	2
Q7			5	1	5	5	6	3	2	2	1
Q8				2	2	5	8	9	5	3	
Q9			1	2	5	9	4	3	4	2	
Q10			1	2	2	7	5	6	4	2	
Q11			1	2	2	6	8	4	4	3	
Q12				2	3	6	4	9	4	2	
Q13			2	2	1	4	4	5	9	3	
Q14			4	3	4	8	6	2	2	1	
Q15		3	5	4	3	7	3	1	4		
Q16			1	1	1			9	2		
Q17				8	5	3	4	3	5	2	
Q18			7	6	7	3	2	1	3		

The mean and SD of each item of the 3 subscales of Malayalam-SSQ is illustrated in Figure 4.1, Figure 4.2, and Figure 4.3. Mean scores in the speech subscale was the lowest (4.58) when compared with other subscales of Malayalam-SSQ, and items of quality subscale was found to have highest mean value (5.515) amongst all.



*Figure 4.1* Mean values of Speech subscale of SSQ

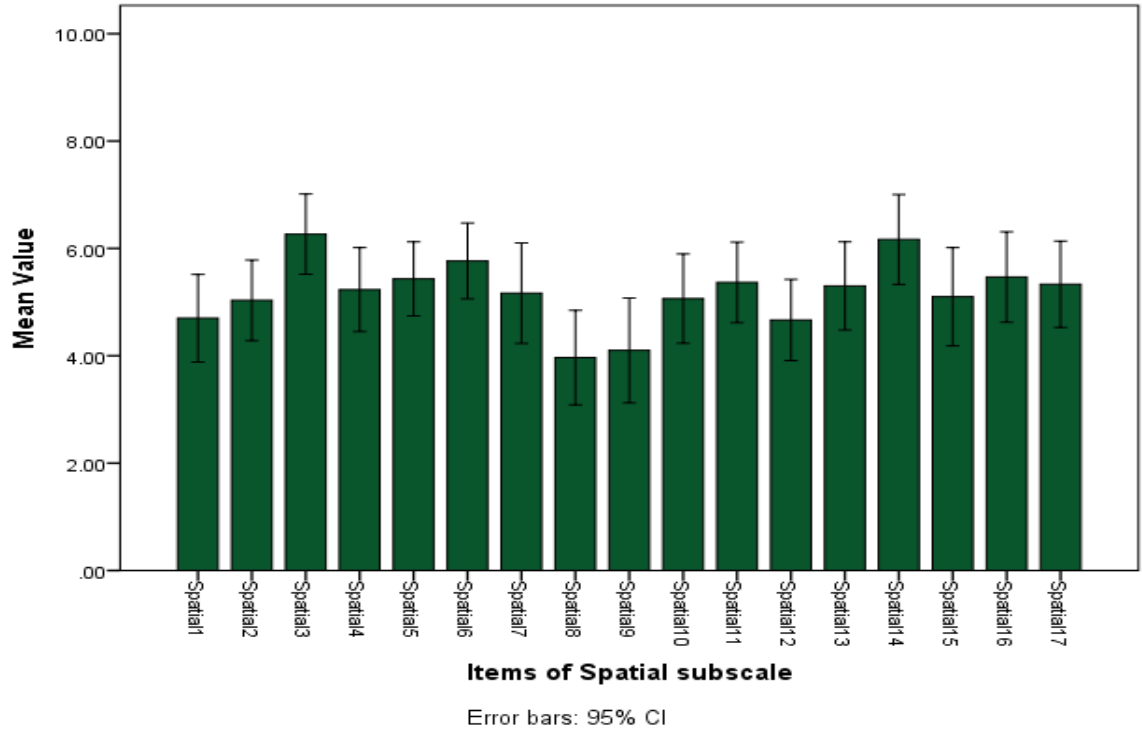


Figure 4.2 Mean values of Spatial subscale of SSQ

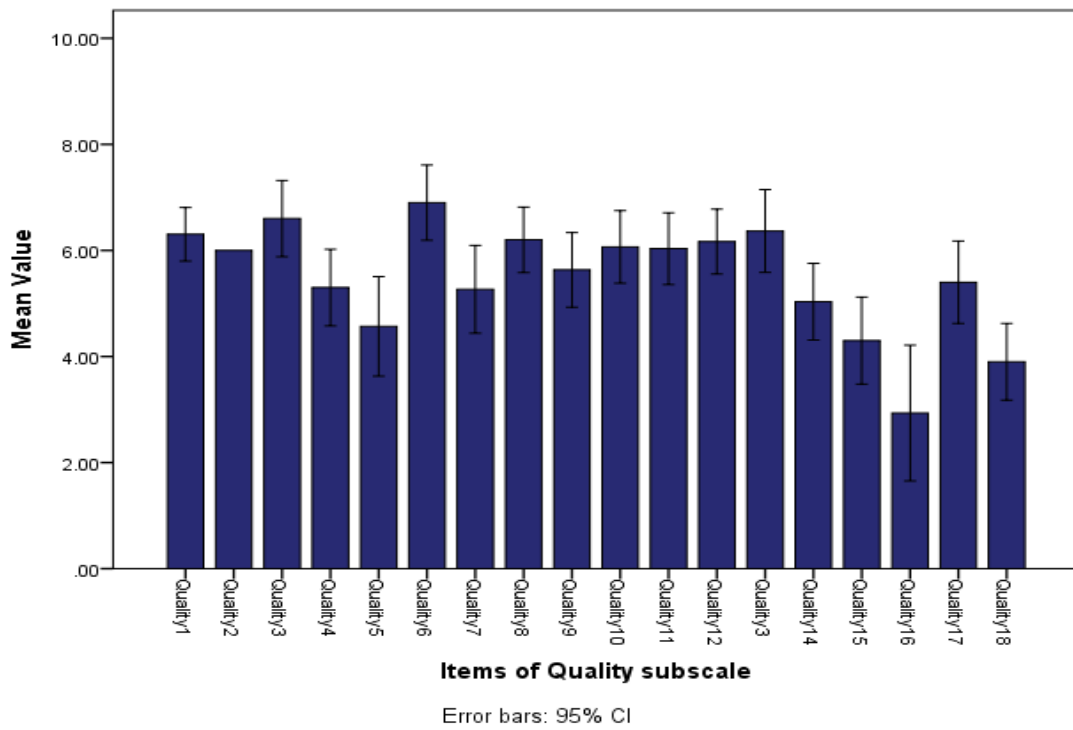


Figure 4.3 Mean values of Qualities subscale of SSQ

### *Internal Consistency*

Cronbach's alpha ( $\alpha$ ) was used to investigate internal consistency. A Cronbach's alpha between 0.70 and 0.95 was classified as good (Terwee et al., 2007). Cronbach's alpha of 0.95 was found for the Malayalam-SSQ entire items. Values of 0.93, 0.95 and 0.90 were found for the speech, spatial and quality sub-scales, respectively. These results indicate that the translated Malayalam-SSQ has good internal consistency.

The corrected item total correlation for Malayalam SSQ were high; ranged from 0.308 to 0.932 suggesting a reliable contribution of each item to the overall score. Ranges of item total correlation of each subscale are: Speech: 0.308 to 0.932; Spatial: 0.330 to 0.896; and Quality: 0.391 – 0.919. Table 4.4, 4.5, and 4.6 provides the corrected item total correlation for speech, spatial and quality subscale respectively.

Table 4.4

#### *Corrected item total correlation for speech subscale*

<b>Item</b>	<b>Corrected item correlation</b>
Speech 1	0.928
Speech 2	0.884
Speech 3	0.865
Speech 4	0.752
Speech 5	0.877
Speech 6	0.820
Speech 7	0.862

Speech 8	0.899
Speech 9	0.907
Speech 10	0.900
Speech 11	0.762
Speech 12	0.932
Speech 13	0.308
Speech 14	0.710

Table 4.5

*Corrected item total correlation for spatial subscale*

<b>Item</b>	<b>Corrected item correlation</b>
Spatial 1	0.462
Spatial 2	0.330
Spatial 3	0.370
Spatial 4	0.723
Spatial 5	0.752
Spatial 6	0.681
Spatial 7	0.886
Spatial 8	0.832
Spatial 9	0.868
Spatial 10	0.890

Spatial 11	0.831
Spatial 12	0.893
Spatial 13	0.878
Spatial 14	0.870
Spatial 15	0.865
Spatial 16	0.896
Spatial 17	0.668

Table 4.6

*Corrected item total correlation for quality subscale*

<b>Item</b>	<b>Corrected item correlation</b>
Quality1	0.631
Quality2	0.391
Quality3	0.704
Quality4	0.909
Quality5	0.774
Quality6	0.809
Quality7	0.779
Quality8	0.470
Quality9	0.507
Quality10	0.519

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Quality11	0.550
Quality12	0.732
Quality13	0.659
Quality14	0.869
Quality15	0.815
Quality16	0.634
Quality17	0.919
Quality18	0.716

---

The first segment of SSQ had 14 questions and was about the understanding of speech in different condition and contexts. Out of all the 3 segments, speech had the lowest score with the mean value of 4.58. The item-total correlation ranges from 0.308 to 0.932. There was less variability among the responses to each item. Although, highest scores were observed in items representing one-to-one conversation in quiet or on the telephone followed by one-to-one conversation in the presence of competing signal such as background noise and when the speaker is not directly visible. Item 2 (“You are talking with one other person in quiet, carpeted lounge-room. Can you follow what the other person says?”) has the highest score with the mean value of 7.13, as this item represents the one-to-one conversation situation in a quiet place with less reverberation and the speaker is visible to the listener. The lowest score is seen in the items representing the situations where the listening is happening in a group talk, divided attention or when speaker(s) are not visible to the listener. Item 14 (“You are listening to someone on the telephone and someone next to you starts talking. Can you follow

what's being said by both speakers?") and item 5 ("You are talking with one other person. There is continuous background noise, such as a fan or running water. Can you follow what the person says?") were the lowest scored, with the mean value of 3.00 and 3.03 respectively. A similar trend in scoring pattern was reported in the previous literature. In Persian version of SSQ, it is stated that item 14 and item 5 were having the least score among the 14 items of speech subscale (Lotfi et al., 2016). Also, Gatehouse and Noble (2004) reported that highest score was seen in item 2, this could be due to the one-to-one conversation and absence of competing noise.

The second segment of the questionnaire had 17 items, which gives the listening situation focused on direction, localization of static or dynamic sound source etc. The item total correlation ranges from 0.330 to 0.896. The performance was comparatively better than speech subscale, but almost similar with the quality subscale. The highest score was obtained by the participants for the items corresponding to the situations in which the sound source is static and items focused on to find the direction of static sound source. The highest score was for item 3 ("You are sitting in between two people. One of them starts to speak. Can you tell right away whether it is the person on your left or your right, without having a look?"). The scores were the lowest when items were asked in the context of moving sound source or items regarding in the estimation of distance between the listener and the sound source. Item 8 ("In the street, can you tell how far away someone is, from the sound of their footsteps?") and item 9 ("Can you tell how far away a bus or a truck is, from the sound?") were scored the least, with the mean value of 3.97 and 4.10 respectively. In both the items, the striking feature is the items relied on the movement and distance. The same pattern of scoring was reported by



Gatehouse and Noble (2004) in their study. But still there was a strong inter-item correlation exist in spatial subscale when compared with other two.

The last section of SSQ assessed the other qualities of hearing such as effort needed in a sustained conversation, ability to understand the mood of the speaker from their voice, naturalness of own voice and others, auditory segregation, music perception. Among the 3 subscales of SSQ, quality segment score was slightly higher than others. The mean score of quality subscale was 5.18. The scores were good for the items representing segregation of two sounds, recognizing familiar voices and music pieces, judging one's mood from their voice, naturalness of voice. The highest score was for the item 6 ("Can you tell the difference between different sounds, for example, a car versus a bus; water boiling in a pot versus food cooking in a frying pan?"). And scores were comparatively poorer for the items representing ease of listening such as item 18 ("Can you easily ignore other sounds when trying to listen to something?"). Also, the item 16 ("When you are the driver in a car can you easily hear what someone is saying who is sitting alongside you?") was isolated from the other items as many of the participants were chose this item as "Not applicable". Eventually the inter item correlation was poorer for this item than any of the other items.

The participants in the study were elderly population and hence the scores were slightly poorer when compared with other studies previously done (Mouline et al., 2015). Singh and Pichora-Fuller (2010) compared the SSQ scores of young adults and elderly and reported that, elderly group had significantly poorer scores compared with younger adult group.

This study is consistent with previous studies with respect to validity and reliability of the SSQ questionnaire. Considering the 49 items in the questionnaire, the overall Cronbach's alpha value is 0.95. Previous studies on SSQ have reported high internal consistency for the different versions of full scale, subscales and even for the screening versions such as SSQ-5 and SSQ-12 (Kießling et al., 2011; Demeester et al., 2012; Galvin & Noble, 2013; Noble et al., 2013; Heo et al., 2013; Ramos et al., 2014; Gonzalez & Almeida, 2015; Mouline et al., 2015; Mouline & Richard, 2016; Tufatulin & Artyushkin, 2016; Lotfi et al., 2016; Quara et al., 2019; Sánchez et al., 2020). This is similar to Malayalam and English -SSQ reports showing  $\alpha$  value to be greater than 0.9 in this study and in a study done by Noble et al., (2004).

As a whole, it is expected that the translated Malayalam-SSQ will be useful in different environment for heterogeneous group of individuals with hearing impairment.

## Chapter 5

### Summary and Conclusion

In the present study, SSQ English version is adapted and translated to Malayalam language with the help of a linguist. Later it was validated by an audiologist to check whether the Malayalam translated questions were having the same meaning as that of English version, and suitable modification were made. The finalised questionnaire was given to participants recruited for the study, who were native Malayalam speakers with the age range from 45 – 60 years of age with hearing impairment of sensorineural type. Total 30 individuals were recruited.

The collected data was analyzed to check the internal consistency using Cronbach's alpha value and mean and standard deviation for each item also were analyzed. Out of 3 subscales of SSQ, speech subscale score was most affected and quality subscale was the least. It indicates that speech understanding in different environments were affected in individuals with hearing impairment. Also, Cronbach's alpha value was more than 0.95, which indicates good internal consistency along with good inter-item correlations.

SSQ questionnaire has more than 20 version until now. So, this translation will lead to easy comparison of performance of hearing-impaired individuals, who are Malayalam speakers. Also, the 49-item questionnaire can be used to check the outcome of amplification devices such as hearing aid or cochlear implants across the time, which helps in fine tuning as well. This also, helps the clinician to focus on improving their

client's hearing status based on specific domains by designing a rehabilitation program. It is a valid and easy-to-use tool for separating the satisfied and dissatisfied hearing aid users.

### **5.1 Implications of the study**

- The present study developed a self-assessment tool for Malayalam speaking individuals with hearing impairment.
- It can help clinician/ audiological practitioner to understand the problems of hearing impaired and provide guidelines to counsel the benefits from the hearing aids.
- It sensitizes the audiologist to understand the listening needs and expectations of the hearing-impaired individuals during hearing aid fitting and post hearing aid fitting.
- This tool can save time for both the audiologist as well as client in the process of best fit.
- The questionnaire can be used to extensively to evaluate a particular service model or to compare the performance from one clinic to other.
- The questionnaire can be used to compare the disability and quality of life of Malayalam speaking individuals with others.
- The results can be compared internationally.

### **5.2 Future research:**

- Questionnaire can be translated in to other regional Indian languages so that, outcomes can be compared across different hearing aid using populations within the country.
- The outcomes of hearing aid or cochlear implants with different technologies can be measured and compared.
- Influence of time of administration of SSQ can be further investigated.

### **5.3 Limitation of the study:**

- Sample size is less for the study.
- Equal proportion of different degree of hearing impairment was not maintained.

## References

- Aguiar, R. G., Almeida, K. D., & Miranda-Gonzalez, E. C. (2019).  
undefined. *International Archives of Otorhinolaryngology*, 23(04), e380-e383.  
doi:10.1055/s-0039-1677754
- Akeroyd, M. A., Guy, F. H., Harrison, D. L., & Suller, S. L. (2013). A factor analysis  
of the SSQ (Speech, spatial, and qualities of hearing scale). *International  
Journal of Audiology*, 53(2), 101-114. doi:10.3109/14992027.2013.824115
- Banh, J., Singh, G., & Pichora-Fuller, M. K. (2012). Age affects responses on the  
Speech, Spatial, and Qualities of Hearing Scale (SSQ) by adults with minimal  
audiometric loss. *Journal of the American Academy of Audiology*, 23(2), 81-91.  
doi:10.3766/jaaa.23.2.2
- Demeester, K., Topsakal, V., Hendrickx, J., Franssen, E., Van Laer, L., Van Camp, G.,  
... Van Wieringen, A. (2012). Hearing disability measured by the speech,  
spatial, and qualities of hearing scale in clinically normal-hearing and hearing-  
impaired middle-aged persons, and disability screening by means of a reduced  
SSQ (the SSQ5). *Ear and Hearing*, 33(5), 615-616.  
doi:10.1097/aud.0b013e31824e0ba7
- Gatehouse, S., & Noble, W. (2004). The speech, spatial and qualities of hearing scale  
(SSQ). *International Journal of Audiology*, 43(2), 85-99.  
doi:10.1080/14992020400050014

- Gonzalez, E. C., & Almeida, K. D. (2015). Cross-cultural adaptation of the Speech, Spatial and Qualities of Hearing Scale (SSQ) to Brazilian Portuguese. *Audiology - Communication Research*, 20(3), 215-224. doi:10.1590/s2317-64312015000300001572
- Killan, C. F., Baxter, P. D., & Killan, E. C. (2020). undefined. *International Journal of Pediatric Otorhinolaryngology*, 133, 109964. doi:10.1016/j.ijporl.2020.109964
- Kim, B. J., An, Y., Choi, J., Park, M. K., Ahn, J. H., Lee, S. H., ... Han, G. C. (2017). Standardization for a Korean version of the speech, spatial and qualities of hearing Scale: Study of validity and reliability. *Korean Journal of Otorhinolaryngology-Head and Neck Surgery*, 60(6), 279-294. doi:10.3342/kjorl-hns.2016.17615
- Lotfi, Y., Nazeri, A. R., Asgari, A., Moosavi, A., & Bakhshi, E. (2016). Iranian version of speech, spatial, and qualities of hearing scale: A psychometric study. *Acta Medica Iranica*, 756-764.
- Mick, P., Kawachi, I., & Lin, F. R. (2014). The association between hearing loss and social isolation in older adults. *Otolaryngology-Head and Neck Surgery*, 150(3), 378-384. doi:10.1177/0194599813518021
- Miranda-Gonzalez, E. C., & Almeida, K. D. (2017). Hearing disability measured by the Speech, Spatial and Qualities of Hearing Scale (SSQ): Pilot study of a short version in Brazilian Portuguese. *Audiology - Communication Research*, 22(0). doi:10.1590/2317-6431-2016-1709
- Mishra, A. K., Sinha, A. K., Kumar, H., & Prasad, B. (2016). Comparison of Functional Benefit of Unilateral versus Bilateral Hearing Aid Fitting in Elderly

Population Using Hindi Transadaptation of Speech, Spatial, and Qualities of Hearing Scale. *Journal of Dental and Medical Sciences*, 15(5), 77-82.

doi:10.9790/0853-1505097782

Moulin, A., Pauzie, A., & Richard, C. (2015). Validation of a French translation of the Speech, Spatial, and Qualities of Hearing Scale (SSQ) and comparison with other language versions. *International Journal of Audiology*, 54(12), 889-898.

doi:10.3109/14992027.2015.1054040

Moulin, A., & Richard, C. (2015). Sources of variability of speech, spatial, and qualities of hearing scale (SSQ) scores in normal-hearing and hearing-impaired populations. *International Journal of Audiology*, 55(2), 101-109.

doi:10.3109/14992027.2015.1104734

Moulin, A., & Richard, C. (2016). Validation of a French-language version of the spatial hearing questionnaire, cluster analysis and comparison with the speech, spatial, and qualities of hearing scale. *Ear and Hearing*, 37(4), 412-423.

doi:10.1097/aud.0000000000000269

Noble, W., & Gatehouse, S. (2006). Effects of bilateral versus unilateral hearing aid fitting on abilities measured by the Speech, Spatial, and Qualities of Hearing scale (SSQ). *International Journal of Audiology*, 45(3), 172-181.

doi:10.1080/14992020500376933

Noble, W., Jensen, N. S., Naylor, G., Bhullar, N., & Akeroyd, M. A. (2013). A short form of the speech, spatial and qualities of hearing scale suitable for clinical use: The SSQ12. *International Journal of Audiology*, 52(6), 409-412.

doi:10.3109/14992027.2013.781278



- Quar, T. K., Ishak, W. S., & Lani, A. (2018). Adapting the speech, spatial and qualities of hearing scale into Malay—a preliminary study. *Speech, Language and Hearing, 22*(3), 142-148. doi:10.1080/2050571x.2018.1498822
- Reuben, D. B., Walsh, K., Moore, A. A., Damesyn, M., & Greendale, G. A. (1998). Hearing loss in community-dwelling older persons: National prevalence data and identification using simple questions. *Journal of the American Geriatrics Society, 46*(8), 1008-1011. doi:10.1111/j.1532-5415.1998.tb02758.x
- Sánchez, D. C., Cañas, F. A., Azevedo, Y. J., & Bahmad Junior, F. (2020). Cultural adaptation of the speech, spatial and qualities of hearing scale to colombian Spanish. *Brazilian Journal of Otorhinolaryngology*. doi:10.1016/j.bjorl.2020.02.005
- Singh, G., & Kathleen Pichora-Fuller, M. (2010). Older adults' performance on the speech, spatial, and qualities of hearing scale (SSQ): Test-retest reliability and a comparison of interview and self-administration methods. *International Journal of Audiology, 49*(10), 733-740. doi:10.3109/14992027.2010.491097
- Tufatulin, G. S., & Artyushkin, S. A. (2016). Validation of the Russian language version of the SSQ questionnaire. *Vestnik otorinolaringologii, 81*(2), 17. doi:10.17116/otorino201681217-22
- Tyler, R. S., Perreau, A. E., & Ji, H. (2009). Validation of the spatial hearing questionnaire. *Ear and Hearing, 30*(4), 466-475. doi:10.1097/aud.0b013e3181a61efe
- World Health Organization. (2011). *World report on disability 2011*. World Health Organization.

Zhang, J., Tyler, R., Ji, H., Dunn, C., Wang, N., Hansen, M., & Gantz, B. (2015).

Speech, spatial and qualities of hearing scale (SSQ) and spatial hearing questionnaire (SHQ) changes over time in adults with simultaneous cochlear implants. *American Journal of Audiology*, 24(3), 384-397.

doi:10.1044/2015\_aja-14-0074

Ramos, I. M. P. D. M. (2013). *The speech, spatial and qualities of hearing scale:*

*tradução e adaptação cultural para o português europeu* (Doctoral dissertation).

**APPENDIX A- Speech Spatial Qualities – Malayalam**

പേര്:

വയസ്സ്:

ലിംഗം: പുരുഷൻ/ സ്ത്രീ

ഇനത്തെ തീയതി:

**To be filled by the investigator:-**

Degree of Hearing Loss:

Type of Hearing Loss:

Onset of Hearing Loss:

Comorbidities, if any:

**നിർദ്ദേശങ്ങൾ**

നിങ്ങളുടെ കേൾവിയും കേൾക്കാൻ സാധ്യതയുള്ള സഹചര്യങ്ങളുമാണ് ഈ ചോദ്യാവലിയിൽ ഉൾപ്പെടുത്തിയിട്ടുള്ളത്. തന്നിരിക്കുന്ന ഓരോ ചോദ്യവും വ്യക്തമായി വായിച്ച് മനസ്സിലാക്കുക. ഓരോ ചോദ്യത്തിനും ചുവടെയായി 0 മുതൽ 10 വരെ ആരോഹണ ക്രമത്തിൽ 'കേൾക്കാൻ വളരെ പ്രയാസം' മുതൽ 'കേൾക്കാൻ വളരെ എളുപ്പം' എന്ന തോതിൽ ഒരു സ്കെയിൽ കൊടുത്തിരിക്കുന്നു. തന്നിരിക്കുന്ന ഓരോ ചോദ്യത്തിലെ സന്ദർഭത്തിലും കേൾവിയുടെ നിങ്ങളുടെ അനുഭവവേദ്യമാകുന്ന തോത് എന്ന് അടയാളപ്പെടുത്തുക. ഏതെങ്കിലും ചോദ്യത്തിലെ സഹചര്യം നിങ്ങളുടെ നിത്യജീവിതത്തിൽ പ്രസക്തമല്ലാത്തതാണെങ്കിൽ 'ബാധകമല്ല' എന്ന കോളത്തിൽ മാർക്ക് ചെയ്യുക.

Speech Spatial Qualities (Part 1: Speech hearing)

<p>1</p>	<p>നിങ്ങൾ മറ്റൊരാളുമായി സംസാരിക്കുകയാണ്. അതേ സമയം മുറിയിൽ ടിവിയും ഓൺ ചെയ്ത് വെച്ചിട്ടുണ്ട്. ടിവിയുടെ ശബ്ദം കുറക്കാതെ തന്നെ മറ്റേയാൾ പറയുന്നത് താങ്കൾക്ക് മനസ്സിലാകുമോ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span style="margin-left: 100px;">വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>2</p>	<p>നിങ്ങൾ കാർപറ്റ് വിരിച്ച ശാന്തമായ മുറിയിൽ സംഭാഷണത്തിൽ ഏർപ്പെട്ടു കൊണ്ടിരിക്കുകയാണ്. താങ്കൾക്ക് മറ്റേയാൾ പറയുന്നത് മനസ്സിലാകുമോ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span style="margin-left: 100px;">വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>3</p>	<p>താങ്കൾ ഏകദേശം 5 പേർക്കൊപ്പം ഒരു മേശക്കു ചുറ്റുമായി ഇരിക്കുകയാണ്. വളരെ ശാന്തമായ അന്തരീക്ഷമാണ്; മാത്രവുമല്ല, താങ്കൾക്ക് ബാക്കിയുള്ളവരെല്ലാം കാണാനും സാധിക്കുന്നുണ്ട്. താങ്കൾക്ക് അവരുടെ സംഭാഷണം മനസ്സിലാകുമോ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span style="margin-left: 100px;">വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>4</p>	<p>താങ്കൾ ഒരു തിരക്കുള്ള ഒരു ഭക്ഷണശാലയിൽ ഏകദേശം 5 പേരോടൊപ്പമായി ഇരിക്കുകയാണ്. താങ്കൾക്ക് എല്ലാവരെയും കാണാനും സാധിക്കുന്നുണ്ട്. അവരുടെ സംഭാഷണം താങ്കൾക്ക് മനസ്സിലാകുമോ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span style="margin-left: 100px;">വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>5</p>	<p>താങ്കൾ മറ്റൊരാളുമായി സംസാരിച്ച് കൊണ്ടിരിക്കുകയാണ്. അതേ സമയം പുറമേ നിന്ന് നിരന്തരമായി ഫാനിന്റേയോ ഒഴുകുന്ന വെള്ളത്തിന്റേയോ പോലെയുള്ള ശബ്ദവും വരുന്നുണ്ട്. താങ്കൾക്ക് മറ്റേയാൾ പറയുന്നത് മനസ്സിലാകുമോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span style="margin-left: 100px;">വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>6</p>	<p>താങ്കൾ ഒരു തിരക്കുള്ള ഒരു ഭക്ഷണശാലയിൽ ഏകദേശം 5 പേരോടൊപ്പമായി ഇരിക്കുകയാണ്. എന്നാൽ താങ്കൾക്ക് ആ സംഘത്തിലെ എല്ലാവരെയും കാണാൻ സാധിക്കുന്നില്ല. എങ്കിൽ താങ്കൾക്ക് അവരുടെ സംഭാഷണം മനസ്സിലാകുമോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span style="margin-left: 100px;">വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>

7 താങ്കൾ ഒത്തിരി പ്രതിധനിയുള്ള ഒരു സ്ഥലത്ത് (ഉദാ: പള്ളി, ഓഡിറ്റോറിയം/ വലിയ ഹാൾ) നിന്ന് ഒരാളോട് സംസാരിച്ചുകൊണ്ടിരിക്കുകയാണ്. താങ്കൾക്ക് മറ്റേയാൾ പറയുന്നത് മനസ്സിലാകുമോ ?

ഒട്ടുമില്ല
വ്യക്തമായി

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ബാധകമല്ല

8 താങ്കൾ ഒരാളുമായി സംസാരിച്ചുകൊണ്ടിരിക്കുകയാണ്. തൊട്ടപ്പുറത്ത് മറ്റൊരാൾ താങ്കൾ സംസാരിക്കുന്ന ആളുടെ അതേ സ്വരത്തിൽ (സ്ഥായി) സംസാരിക്കുകയാണ്. എങ്കിൽ താങ്കൾക്ക് ആ സംഭാഷണം തുടരുവാൻ സാധിക്കുമോ ?

ഒട്ടുമില്ല
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ബാധകമല്ല

9 താങ്കൾ ഒരാളുമായി സംസാരിച്ചുകൊണ്ടിരിക്കുകയാണ്. തൊട്ടപ്പുറത്ത് മറ്റൊരാൾ താങ്കൾ സംസാരിക്കുന്ന ആളിൽ നിന്ന് വ്യത്യസ്ത സ്വരത്തിൽ (സ്ഥായി) സംസാരിക്കുകയാണ്. എങ്കിൽ താങ്കൾക്ക് ആ സംഭാഷണം തുടരുവാൻ സാധിക്കുമോ ?

ഒട്ടുമില്ല
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10 താങ്കളുമായി സംസാരിച്ചുകൊണ്ടിരിക്കുന്നയാളുടെ സംഭാഷണം മനസ്സിലാക്കാൻ താങ്കൾ ശ്രമിക്കുകയാണ്. അതേ സമയം ടിവിയിലെ വാർത്ത മനസ്സിലാക്കാനും ശ്രമിക്കുന്നു. ഇവ രണ്ടും ഒരേ സമയം ശ്രദ്ധിക്കുവാൻ താങ്കൾക്ക് സാധിക്കുമോ ?

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11 ധാരാളം ആളുകൾ സംസാരിക്കുന്ന ഒരു മുറിയിൽ താങ്കൾ മറ്റൊരാളുമായി സംഭാഷണത്തിലേർപ്പെട്ടുകൊണ്ടിരിക്കുകയാണ്. എങ്കിൽ താങ്കൾക്ക് അദ്ദേഹത്തിന്റെ സംസാരം മനസ്സിലാകുമോ ?

ഒട്ടുമില്ല
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12 താങ്കൾ ഒരു കൂട്ടസംഭാഷണത്തിൽ ഏർപ്പെട്ടിരിക്കുകയാണ്. ഒരാളിൽ നിന്ന് മറ്റൊരാളിലേക്ക് സംഭാഷണം കൈമാറിക്കൊണ്ടിരിക്കുമ്പോൾ താങ്കൾക്ക് ഓരോ വ്യക്തിയുടേയും സംഭാഷണത്തിന്റെ ആദ്യഭാഗം നഷ്ടപ്പെടാതെ അത് മുഴുവൻ എളുപ്പത്തിൽ മനസ്സിലാക്കാൻ കഴിയുമോ ?

	<p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span style="margin-left: 100px;">വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>13</p>	<p>താങ്കൾക്ക് ടെലിഫോണിലൂടെ എളുപ്പത്തിൽ സംഭാഷണം നടത്തുവാൻ സാധിക്കുന്നുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span style="margin-left: 100px;">വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>14</p>	<p>താങ്കൾ ഒരു ഫോൺ സംഭാഷണത്തിൽ ഏർപ്പെട്ടുകൊണ്ടിരിക്കുകയാണ്. അപ്പോൾ തൊട്ടടുത്ത് ഇരിക്കുന്ന ആൾ സംസാരിക്കുവാൻ തുടങ്ങി. അവർ രണ്ട് പേരും പറയുന്ന കാര്യങ്ങൾ നിങ്ങൾക്ക് മനസ്സിലാകുമോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span style="margin-left: 100px;">വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>

Speech Spatial Qualities (Part 2: Spatial Hearing)

<p>1</p>	<p>താങ്കൾ ഒരു അപരിചിതമായ സ്ഥലത്താണ്. താങ്കൾക്ക് പുള്ളി വെട്ടുന്ന യന്ത്രത്തിന്റെ ശബ്ദം കേൾക്കാം. യന്ത്രം കാണാതെ തന്നെ, ശബ്ദം ഏത് ഭാഗത്ത് നിന്നാണ് വരുന്നതെന്ന് കൃത്യമായി പറയാൻ സാധിക്കുമോ ?</p> <p style="text-align: center;"> </p>
<p>2</p>	<p>താങ്കൾ ഒരു മേശക്ക് ചുറ്റുമായി ഇരിക്കുകയാണ്. അല്ലെങ്കിൽ കുറേ ആളുകളുമായി ചർച്ചയിൽ ഏർപ്പെട്ടുകൊണ്ടിരിക്കുകയാണ്. താങ്കൾക്ക് എല്ലാവരേയും കാണാൻ സാധിക്കാത്ത സഹചര്യത്തിലും ആരാണ് സംസാരിക്കുന്നതെന്ന് തുടക്കത്തിൽ തന്നെ മനസ്സിലാക്കുമോ ?</p> <p style="text-align: center;"> </p>
<p>3</p>	<p>താങ്കൾ രണ്ടാളുകളുടെ മധ്യത്തിൽ ഇരിക്കുന്നു ഒരാൾ സംസാരിക്കുവാൻ തുടങ്ങി. അവരെ നോക്കാതെ തന്നെ അത് ഇടതു ഭാഗത്തു നിന്നാണോ അതോ വലതു ഭാഗത്ത് നിന്നാണോ എന്ന് മനസ്സിലാക്കുമോ ?</p> <p style="text-align: center;"> </p>
<p>4</p>	<p>താങ്കൾ അപരിചിതവും നിശബ്ദവുമായ ഒരു വീട്ടിനകത്താണ്. താങ്കൾ വാതിൽ തട്ടുന്ന ശബ്ദം കേട്ടാൽ ഏത് ഭാഗത്ത് നിന്നാണെന്ന് കൃത്യമായി തിരിച്ചറിയാൻ സാധിക്കുമോ ?</p> <p style="text-align: center;"> </p>
<p>5</p>	<p>താങ്കൾ ഒരു ബഹുനിലകെട്ടിടത്തിന്റെ മധ്യനിലയിലെ കോണിപ്പടിയിൽ നിൽക്കുകയാണ്. അപ്പോൾ മറ്റൊരു നിലയിൽ നിന്ന് ശബ്ദം കേൾക്കുകയാണ്. എങ്കിൽ ഉടനെ തന്നെ എവിടെ നിന്നാണ് ശബ്ദം വരുന്നത് എന്ന് പറയാൻ കഴിയുമോ ?</p> <p style="text-align: center;"> </p>

<p>6</p>	<p>താങ്കൾ പുറത്തായിരിക്കെ ഒരു പട്ടി ഉറക്കെ കുരക്കുന്നത് കേൾക്കാൻ ഇടയാക്കുന്നു. തിരിഞ്ഞു നോക്കാതെ അത് എവിടെയാണെന്ന് പറയാൻ കഴിയുമോ ?</p> <p style="text-align: center;"> </p>
<p>7</p>	<p>താങ്കൾ ഒരു തിരക്ക് പിടിച്ച തെരുവോരത്ത് നിൽക്കുകയാണ്. അതിന്റെ അടുത്തായി ഒരു ബസ്സോ അല്ലെങ്കിൽ വലിയ ലോറിയോ കടന്നു പോകുന്ന ശബ്ദം കേട്ടാൽ കാണാതെ തന്നെ അത് ഏത് ഭാഗത്ത് നിന്നാണ് വരുന്നത് എന്ന് പറയാൻ സാധിക്കുമോ ?</p> <p style="text-align: center;"> </p>
<p>8</p>	<p>താങ്കൾ ഇപ്പോൾ ഒരു തെരുവിലാണ്. അവിടെയുള്ള ഒരാളുടെ ശബ്ദമോ കാലോച്ചയോ കേട്ട് അയാൾ താങ്കളിൽ നിന്ന് എത്ര അകലെയാണ് എന്ന് പറയാൻ സാധിക്കുമോ ?</p> <p style="text-align: center;"> </p>
<p>9</p>	<p>ഒരു ബസ്സിന്റെയോ ലോറിയുടെയോ ശബ്ദം കേട്ട്, അത് എത്ര അകലെയാണെന്ന് പറയാൻ സാധിക്കുമോ ?</p> <p style="text-align: center;"> </p>
<p>10</p>	<p>താങ്കൾക്ക് ബസ്സിന്റെയോ ലോറിയുടെയോ ശബ്ദം മാത്രം കേട്ട്, അത് ഏത് ദിശയിലാണ് സഞ്ചരിക്കുന്നത് എന്ന് പറയാൻ സാധിക്കുമോ, ഉദാ: വലത്ത് നിന്ന് ഇടത്തോട്ട് അല്ലെങ്കിൽ ഇടത്ത് നിന്ന് വലത്തോട്ട് ?</p> <p style="text-align: center;"> </p>
<p>11</p>	<p>താങ്കൾക്ക് ഒരാളുടെ ശബ്ദമോ കാലോച്ചയോ മാത്രം കേട്ട്, അയാൾ ഏത് ദിശയിലാണ് സഞ്ചരിക്കുന്നത് എന്ന് പറയാൻ സാധിക്കുമോ, ഉദാ: വലത്ത് നിന്ന് ഇടത്തോട്ട് അല്ലെങ്കിൽ ഇടത്ത് നിന്ന് വലത്തോട്ട് ?</p> <p style="text-align: center;"> </p>

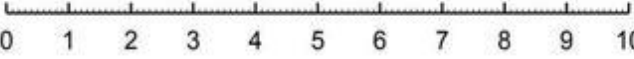
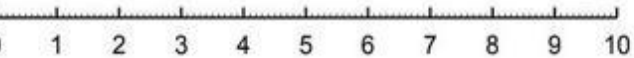
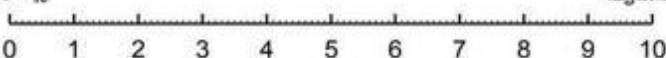
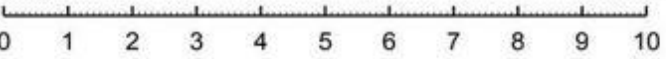
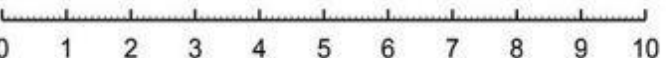


<p>12</p>	<p>താങ്കൾക്ക് ഒരാളുടെ ശബ്ദമോ കാലൊച്ചയോ മാത്രം കേട്ട്, അയാൾ താങ്കളുടെ അടുത്തേക്ക് വരികയാണോ അതോ താങ്കളിൽ നിന്ന് അകന്ന് പോവുകയാണോ</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span>വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p> <p>എന്ന് പറയാൻ സാധിക്കുമോ ?</p>
<p>13</p>	<p>താങ്കൾക്ക് ഒരു ബസ്സിന്റെയോ ലോറിയുടെയോ ശബ്ദം മാത്രം കേട്ട്, അത് താങ്കളുടെ അടുത്തേക്ക് വരികയാണോ അതോ താങ്കളിൽ നിന്ന് അകന്ന് പോവുകയാണോ എന്ന് പറയാൻ സാധിക്കുമോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span>വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>
<p>14</p>	<p>താങ്കൾ കേൾക്കാറുള്ള ശബ്ദം പുറംലോകത്ത് നിന്ന് കേൾക്കുന്നതിനേക്കാൾ തലക്കകത്ത് നിന്ന് കേൾക്കുന്ന പോലെ തോന്നാറുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">തലക്കകത്ത്</span> <span>പുറത്ത്</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>
<p>15</p>	<p>താങ്കൾ ശബ്ദം കൊണ്ട് ഒരാളുടെ സ്മാനം അയാളെ കാണുന്നതിനു മുമ്പ് മനസ്സിലാക്കി. പക്ഷേ അയാളെ കണ്ട് കഴിഞ്ഞപ്പോൾ താങ്കൾ വിചാരിച്ചതിനേക്കാൾ അടുത്താണ് നിൽക്കുന്നത് എന്ന് തോന്നാറുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">വളരെ അടുത്ത്</span> <span>അടുത്തല്ല</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>
<p>16</p>	<p>താങ്കൾ ശബ്ദം കൊണ്ട് സ്മാനം കണക്കാക്കിയ ആൾ/ വസ്തു യഥാർത്ഥത്തിൽ കണ്ട് കഴിഞ്ഞപ്പോൾ താങ്കൾ വിചാരിച്ചതിനേക്കാൾ ദൂരെയാണ് നിൽക്കുന്നത് എന്ന് തോന്നാറുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">വളരെ അകലെ</span> <span>അകലെയല്ല</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>
<p>17</p>	<p>താങ്കൾ പ്രതീക്ഷിച്ച സമയത്തു നിന്ന് തന്നെയാണ് ശബ്ദം വരുന്നത് എന്ന് താങ്കൾക്ക് തോന്നാറുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span>വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>

Speech Spatial Qualities (Part 3: Qualities of hearing)

<p>1</p>	<p>താങ്കൾ രണ്ട് വ്യത്യസ്ത ശബ്ദങ്ങൾ ഒരുമിച്ച് കേട്ടുകൊണ്ടിരിക്കുകയാണ്. ഉദാഹരണത്തിന്, വെള്ളം വീഴുന്ന ശബ്ദവും, അതേ സമയം ടിവിയും പ്രവർത്തിച്ചു കൊണ്ടിരിക്കുകയാണ്. ഇവ രണ്ടും വേറിട്ട് കേൾക്കാൻ സാധിക്കാറുണ്ടോ ?</p> <p style="text-align: center;">ഒട്ടുമില്ല <span style="float: right;">വ്യക്തമായി</span></p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>2</p>	<p>താങ്കൾ ഒരേ സമയം ഒന്നിലധികം ശബ്ദങ്ങൾ കേൾക്കുമ്പോൾ, അവ രണ്ടും കൂടിക്കലർന്ന ഒരു ശബ്ദമായിട്ടാണോ അനുഭവപ്പെടാറുള്ളത് ?</p> <p style="text-align: center;">കൂടിക്കലർന്ന് <span style="float: right;">വേറിട്ട്</span></p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>3</p>	<p>താങ്കൾ ഒരു മുറിയിലാണ് ഉള്ളത്. മുറിയിൽ താങ്കൾ പാട്ട് വെച്ചിട്ടുണ്ട്, അതേ സമയം മറ്റൊരാൾ മുറിയിലിരുന്ന് സംസാരിക്കുന്നുമുണ്ട്. താങ്കൾക്ക് അയാളുടെ ശബ്ദവും പാട്ടും വേർതിരിച്ച് മനസ്സിലാക്കുമോ ?</p> <p style="text-align: center;">ഒട്ടുമില്ല <span style="float: right;">വ്യക്തമായി</span></p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>4</p>	<p>താങ്കൾക്ക് പരിചയമുള്ളവരുടെ ശബ്ദം മാത്രം കേട്ട് അവരെ എളുപ്പത്തിൽ തിരിച്ചറിയാൻ കഴിയാറുണ്ടോ ?</p> <p style="text-align: center;">ഒട്ടുമില്ല <span style="float: right;">വ്യക്തമായി</span></p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>5</p>	<p>താങ്കൾക്ക് പരിചിതമായ സംഗീത ശകലങ്ങൾ, കേട്ടുകൊണ്ട് എളുപ്പത്തിൽ വേർതിരിച്ചറിയാൻ കഴിയാറുണ്ടോ ?</p> <p style="text-align: center;">ഒട്ടുമില്ല <span style="float: right;">വ്യക്തമായി</span></p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>6</p>	<p>താങ്കൾക്ക് പല തരത്തിലുള്ള ശബ്ദങ്ങളുടെ വ്യത്യാസം വേർതിരിച്ചറിയാൻ സാധിക്കുമോ. ഉദാഹരണത്തിന്, ബസ്സിന്റെയും കാറിന്റെയും ശബ്ദം അല്ലെങ്കിൽ വെള്ളം തിളക്കുന്നതും പാനിൽ പൊരിക്കുന്നതുമായ ശബ്ദം ?</p> <p style="text-align: center;">ഒട്ടുമില്ല <span style="float: right;">വ്യക്തമായി</span></p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>

<p>7</p>	<p>താങ്കൾ സംഗീതം ആസ്വദിക്കുന്ന വേളയിൽ, ഏത് സംഗീതോപകരണമാണ് അതിൽ ഉപയോഗിച്ചിരിക്കുന്നത് എന്ന് തിരിച്ചറിയാൻ സാധിക്കുമോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span>വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>
<p>8</p>	<p>താങ്കൾ സംഗീതം ആസ്വദിക്കുന്ന വേളയിൽ, അതിന്റെ തനിമയും സ്വപക്ഷതയും അനുഭവിക്കാൻ സാധിക്കാറുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span>വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>
<p>9</p>	<p>താങ്കൾ നിത്യേന കേൾക്കുന്ന ശബ്ദങ്ങൾ വ്യക്തമായി, സ്വപക്ഷതയോട് കൂടി കേൾക്കാൻ സാധിക്കാറുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span>വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>
<p>10</p>	<p>താങ്കൾക്ക് മറ്റുള്ളവരുടെ ശബ്ദങ്ങൾ വ്യക്തമായി, സ്വപക്ഷതയോട് കൂടി കേൾക്കാൻ സാധിക്കാറുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span>വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>
<p>11</p>	<p>താങ്കൾ നിത്യേന കേൾക്കുന്ന ശബ്ദങ്ങൾ കൃത്രിമവും അസ്വാഭാവികവുമായി തോന്നാറുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span>വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>
<p>12</p>	<p>താങ്കളുടെ സ്വന്തം ശബ്ദം സ്വാഭാവികമായി തോന്നാറുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span>വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>
<p>13</p>	<p>താങ്കൾക്ക് ഒരാളുടെ ശബ്ദത്തിൽ നിന്ന് അയാളുടെ മാനസികാവസ്ഥ മനസ്സിലാക്കാൻ കഴിയാറുണ്ടോ ?</p> <p style="text-align: center;"> <span style="margin-right: 100px;">ഒട്ടുമില്ല</span> <span>വ്യക്തമായി</span> </p> <p style="text-align: center;"> </p> <p style="text-align: right;"> <span style="margin-right: 20px;">ബാധകമല്ല</span> <input type="checkbox"/> </p>

<p>14</p>	<p>ആരെയെങ്കിലും അല്ലെങ്കിൽ എന്തെങ്കിലും കേൾക്കേണ്ട സമയത്ത് ഒരുപാട് ശ്രദ്ധ വളരെയധികം <span style="float: right;">വളരെകുറച്ച്</span></p>  <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p> <p>കേന്ദ്രീകരിക്കേണ്ടി വരാറുണ്ടോ ?</p>
<p>15</p>	<p>താങ്കൾ മറ്റുള്ളവരുമായി സംഭാഷണത്തിൽ ഏർപ്പെട്ടുകൊണ്ടിരിക്കുമ്പോൾ അത് മനസ്സിലാക്കാൻ ഒരുപാട് പ്രയാസപ്പെടാറുണ്ടോ ?</p> <p>വളരെയധികം <span style="float: right;">വളരെകുറച്ച്</span></p>  <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>16</p>	<p>താങ്കൾ ഒരു കാര്യം ഓടിച്ചുകൊണ്ടിരിക്കുകയാണ്. അപ്പോൾ തൊട്ടടുത്തിരിക്കുന്ന ആൾ സംസാരിക്കുന്നത് താങ്കൾക്ക് വ്യക്തമായി കേൾക്കാൻ സാധിക്കുമോ ?</p> <p>ഒട്ടുമില്ല <span style="float: right;">വ്യക്തമായി</span></p>  <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>17</p>	<p>താങ്കൾ ഒരു യാത്രക്കാരനായിരിക്കെ, തൊട്ടടുത്തിരിക്കുന്ന ഡ്രൈവർ സംസാരിക്കുന്നത് താങ്കൾക്ക് വ്യക്തമായി കേൾക്കാൻ സാധിക്കുമോ ?</p> <p>ഒട്ടുമില്ല <span style="float: right;">വ്യക്തമായി</span></p>  <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>
<p>18</p>	<p>താങ്കൾ ഏതെങ്കിലും ഒരു പ്രത്യേക ശബ്ദത്തിനു മാത്രം ശ്രദ്ധ കേന്ദ്രീകരിക്കാൻ ശ്രമിക്കുമ്പോൾ, മറ്റുള്ള ശബ്ദങ്ങളെ എളുപ്പത്തിൽ അവഗണിക്കാൻ സാധിക്കുമോ ?</p> <p style="text-align: right;">വളരെ എളുപ്പം</p>  <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: right;">ബാധകമല്ല <input type="checkbox"/></p>