



DEVELOPMENT AND STANDARDIZATION OF FIVE MINUTE HEARING TEST IN HINDI NETAJI SUBHASH CHANDRA BOSE MEDICAL COLLEGE, JABALPUR, MADHYA PRADESH

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Abstract

The demise of hearing ability can lead to catastrophic effects on individuals in the form of lack of social interaction, lack of confidence, reduced the quality of life and even hampers psychological well-being. Therefore, there is a necessity for screening tool which can identify hearing loss in individuals at a larger scale within a shorter period. The Five Minute Hearing Test questionnaire was developed by the American Academy of Otolaryngology –Head and Neck Surgery [AAOHNS].

Aim

The study aimed at the translation of Five Minute Hearing Test (FMHT) into the Hindi language for screening the Indian population and to validate it on the Indian Hindi speaking population.

Method

The study was carried out in two phases. In the first phase, the English version of FMHT was translated into Hindi and then reverse translated. In the second phase, the translated version of FMHT was administered on 220 individuals above 18 years of age in Jabalpur district, Madhya Pradesh, India.

Results and Discussion

The total FMHT scores were computed for all 220 participants. The results of the present study revealed that 124 individuals had their scores in between 0-5 indicated normal hearing sensitivity; 49 individuals whose scores were between 6-9 were recommended to meet the audiologist and another 47 individuals whose scores were > 10, were strongly recommended to meet the audiologist. The result of Cronbach's alpha suggests that FMHT Hindi version had high test-retest reliability.

Conclusion

To conclude, the Hindi version of FMHT can be considered as a reliable tool that can be used across the Hindi speaking regions by hearing professionals for screening and referral purposes.

Key words: Hearing loss, Hearing screening questionnaire, FMHT.

Introduction

The hearing is one of the most indispensable parts of communication and the demise of hearing ability causes catastrophic effects on individuals in the form of lack of social interaction, lack of confidence, reduced quality of life and even hampers psychological well-being. Current lifestyle had made hearing impairment one of the most common problems in all age group. It was reported that more than 259 million people were affected by hearing loss (Mathers, Smith & Concha, 2000). Pure-tone audiometry is mediated as a gold standard test for the hearing evaluation, but it takes longer time duration, longer attention span and requires a costly setup which includes audiometer and acoustically treated rooms. Therefore, there is a necessity for screening tool which can identify hearing loss in individuals at a larger scale within a shorter period.

The high-risk register (HRR) is available in Hindi which contains 30 questions related to pre, peri and postnatal history which aids in detecting children at risk. However, administering all the 30 questions becomes tedious and time-consuming. For Adult Hearing screening, there are other few short self-assessment questionnaires available such as Hearing Performance Inventory (Giolas, Owens, Lamb, Schubert, 1979), the Shortened Hearing Handicap Inventory for the Elderly (HHIE-S) [Sind –husake et al., 2001] and the Five Minute Hearing Test (FMHT). The Five Minute Hearing Test questionnaire was developed by the American Academy of Otolaryngology –Head and Neck Surgery [AAOHNS]. FMHT had 80% sensitivity and 52% specificity in



identifying individuals with hearing impairment (Koike, Hurst, & Wetmore, 1994). The test can benefit the Indian population by translating it into Indian languages.

The review of the literature suggests that there is no standardized, cost-effective and quick screening material available in India in the Hindi language. Although, Hindi is one of the main official languages of India, majorly spoken in the northern part of India. This brings us to the need for the present study, i.e., to develop a Hearing screening tool in the Hindi language. This will benefit the people in a rural area, where the infrastructure of screening or diagnostic tests are unavailable. The current study aimed at translation of Five Minute Hearing Test (FMHT) into the Hindi language for screening the Indian population and to validate it on the Indian Hindi speaking population.

Methods

Procedure and participants

The study was carried out in two phases. In the first phase, the English version of FMHT was translated into Hindi and reverse translation was done with the help of language professionals who were well versed in both English and Hindi language. The translated Hindi version of FMHT was further content validated.

For the second phase, the translated version of FMHT was administered on 220 individuals above 18 years of age in Jabalpur district, Madhya Pradesh, India. The participants were recruited using non-probability purpose sampling technique who can read or understand the Hindi language. The final questionnaire had 15 questions, where each question has to be rated on a 4 point rating scale (0, 1, 2, 3) based on problem experienced by the patients. In the rating scale, '0' referred to 'never', '1' referred to 'sometimes,' '2' referred to 'almost' and '3' referred to "always."

Statistical Analysis

The responses obtained from each participant were totaled. These scores were averaged across all the participants and fed to the computer for statistical analysis. SPSS version 20 software was used for the statistical analysis. Appropriate descriptive and inferential statistical procedures were applied to present the demographic data and to assess the internal consistency among test items.

Results

In the present study, a total of 220 individuals were screened. The adults were divided into two groups, i.e., younger adults (18-40 years) and older adults (41-90 years). Among these 220 individuals, majority (55%) were in older group, followed by 45% of the individual in the younger age group (Figure 1). Also, in these 220 individuals, 116 (52%) were males and rest 104 (48%) were females.

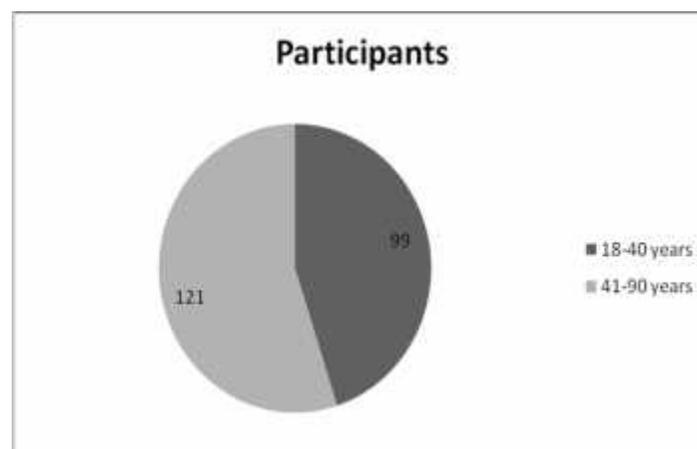


Figure 1. Distribution of participants across the age groups



All the individuals considered for the study were educated. The majority of individuals had completed their graduation (44%), followed by 22% were post graduates, 15% had done their higher education, 14% had done secondary education and 4% had done only their primary education. Out of total subjects, 9 of them were primary educated, 81 subjects had secondary education, 34 had higher education, 98 were Graduates and 48 had completed their post graduation.

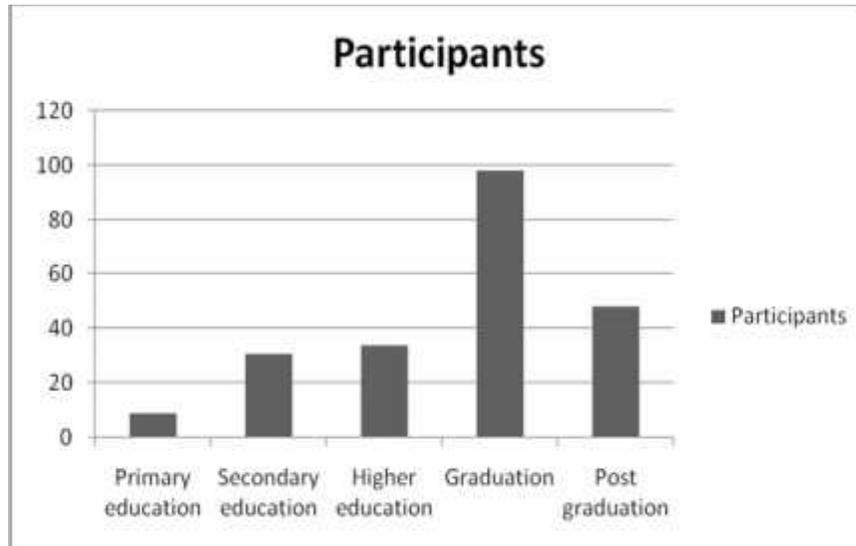


Figure 2. Distribution of participants based on their education

The total FMHT scores computed for all 220 participants. The results suggest that 124 (57%) participants had their scores between 0-5, 49 (22%) participants had their scores between 6-9 and rest 47 (21%) had their scores above 10. Koike et al. (1994) has reported that those subjects who got their scores between 0-5, there is no need of any further evaluation in those individuals; those individuals who had their scores in between 6 to 9 were recommended for otolaryngology evaluation; and individuals who had their score above 10 were strongly recommended for otolaryngology evaluation.

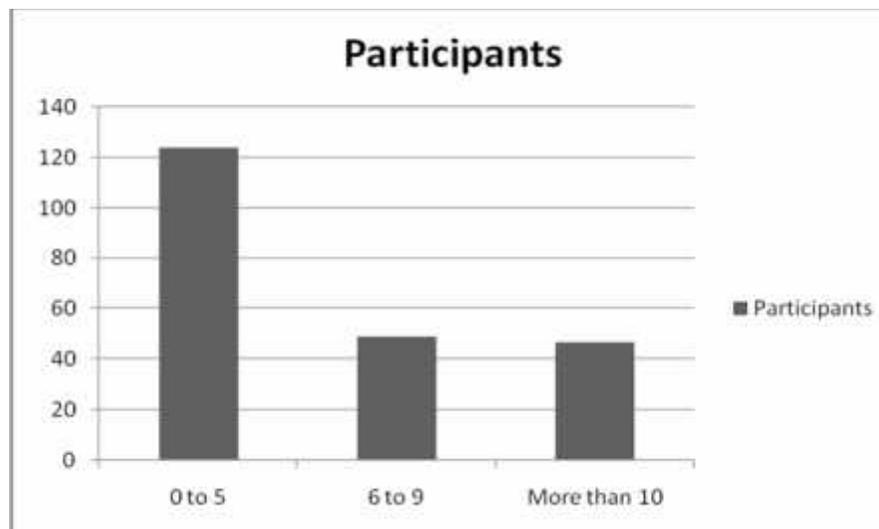


Figure 3. Distribution of participants across the FMHT scores



The test-retest reliability was determined for 33% of the samples using Cronbach's alpha. The alpha value for the total FMHT scores was 0.851, which indicated significantly high test-retest reliability.

Discussion

The purpose of the study was to translation of Five Minute Hearing Test (FMHT) into the Hindi language for screening the Indian population and to validate it on Indian Hindi speaking population. The data was collected from the individuals of different age groups, answers were recorded in the form of questionnaire and statistical analysis was done. The results of the present study revealed that 124 individuals had their scores in between 0-5 indicated normal hearing sensitivity; 49 individuals whose scores were between 6-9 were recommended to meet the audiologist and another 47 individuals whose scores were > 10, were strongly recommended to meet the audiologist. Hence, 43% of screened individuals were referred for detailed audio logical evaluation which involves pure tone audiometry, speech audiometry and tympanometry. The Thai version of the FMHT had lower cutoff points for screening hearing loss in the community than the English version of FMHT. The study of Koike, Hurst, & Wetmore, (1994) suggested a higher cutoff point of 15, which yielded 80% of sensitivity and 55.5 % specificity. In the current study, when the cutoff point was made to 15, the referral rate fell drastically to 1%. When compared to the Thai and English FMHT there was a significant difference. The ratio obtained of screening hearing loss was 2.14 for Thai FMHT whereas for Hindi version the ratio was 1. This can be because of major difference in the number of participant, 606 individuals were involved in Thai FMHT and 220 people participated for Hindi FMHT. This questionnaire will be helpful in screening individuals in the Hindi speaking regions of India and can aid in awareness, prevention, diagnostics and management. This mass hearing screening test can also be conducted in the Hindi speaking rural areas where the costly setup for screening tests are not feasible.

Conclusion

The English version of FMHT was translated into Hindi language by reverse translation method, and then it was administered on 220 individuals. The results of the current study conclude that FMHT has good reliability as per the Cronbach's alpha score. The Hindi version of FMHT can be considered as a reliable tool that can be used across the state by hearing professionals in screening, assessment, and management. The questionnaire can assist to create awareness among people regarding their hearing ability. These results may encourage the public health services to use Hindi FMHT to improve the hearing accessibility of people with hearing disabilities. The sensitivity and specificity can be checked later to assess the hearing loss.

References

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