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Speech Identification Test for Individuals with High-Frequency Sloping Hearing Loss in Telugu

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Abstract : Telugu is a south central Dravidian language spoken in Andhra Pradesh, a southern state of India. The available speech identification tests in Telugu have been developed to determine the communication problems of individuals having a flat frequency hearing loss. These conventional speech audiometric tests would provide redundant information when used on individuals with high-frequency sloping hearing loss because of better hearing sensitivity in the low- and mid-frequency regions. Hence, conventional speech identification tests do not indicate the true nature of the communication problem of individuals with high-frequency sloping hearing loss. It is highly possible that a person with a high-frequency sloping hearing loss may get maximum scores if conventional speech identification tests are used. Hence, there is a need to develop speech identification test materials that are specifically designed to assess the speech identification performance of individuals with high-frequency sloping hearing loss. The present study aimed to develop speech identification test for individuals with high-frequency sloping hearing loss in Telugu. Individuals with high-frequency sloping hearing loss have difficulty in perception of voiceless consonants whose spectral energy is above 1000 Hz. Hence, the word lists constructed with phonemes having mid- and high-frequency spectral energy will estimate speech identification performance better for such individuals. The phonemes /k/, /g/, /c/, /ṭ/ /t/, /p/, /s/, /ś/, /ṣ/ and /h/are preferred for the construction of words as these phonemes have spectral energy distributed in the frequencies above 1000 KHz predominantly. The present study developed two word lists in Telugu (each word list contained 25 words) for evaluating speech identification performance of individuals with high-frequency sloping hearing loss. The performance of individuals with high-frequency sloping hearing loss was evaluated using both conventional and high-frequency word lists under recorded voice condition. The results revealed that the developed word lists were found to be more sensitive in identifying the true nature of the communication problem of individuals with high-frequency sloping hearing loss.

Keywords : speech identification test, high-frequency sloping hearing loss, recorded voice condition, Telugu
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