

THE DEVELOPMENT AND STANDARDIZATION OF A GROUP SCREENING AUDIOMETER AND PROCEDURE FOR INDIAN CONDITION

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Auditory screening is an attempt to identify persons who have significant hearing defects from a population made up predominantly of people with normal or adequate hearing. The technique of screening is as its purpose the identification as quickly as economically as possible and individuals in a large population who are in need of some special service.

The study consists of 3 parts. The first part of the study is developing a group screening audiometer having 3 pure tone of frequency 500, 1000 and 2000 Hz with a provision for speech signal from a tape recorder. The output of the audiometer is fed to free field loudspeaker. The audiometer employs a Wein's Bridge Ic Oscillator and a power amplifier consisting of ICS and a few discrete components. The output of the loudspeaker is controlled by using a step attenuator. The unit is tested thoroughly for its stability in terms of its characteristics namely frequency distortion and acoustic output.

The second part is preparing speech material for group screening purpose. The group screening material consists of Kannada picture SRT list with little modification to suit Kannada knowing subjects. The Kannada picture SRT list ' I ' (adults) and SRT list II (children) are pooled to suit adults and children. The pictures were drawn in a single page and cyclostyled to use as a response sheet. The words are recorded in a cassette tape for the testing purpose.

The last part in the study is administering group screening test and standardizing it.

Seventy Kannada knowing subjects were tested. The subjects' age ranged from 6 to 73 years. Both females and males were tested. The 70 subjects include hearing loss cases, graduates and students of AIISH. Fourteen subjects were tested at a time. The subjects were made to sit in 2 rows at a distance of 1.5 meters and 2.5 meters from the loudspeaker. The test was conducted in a sound proof room where the noise level is below 30 dBA. Necessary instructions were given to the subjects about the test and marking the response. The results obtained were analyzed and compared with the conventional testing procedure for both air conduction and bone conduction. The following are the results ; out of 70 subjects tested 41 were males and 29 females; 27 males and 23 females were found to have normal hearing in both functional and screening audiometer. The subjects who were diagnosed to have normal hearing in the functional audiometer that is within 20dB HL were responding at 20 dB and 30 db HL in the screening audiometry Therefore the threshold is greater than 30 dB in any frequency tested or in SRT can be considered to be having hearing loss. In 13 cases the screening audiometry results and the functional audiometry results coincided. In these cases history presented by the case, the type of hearing loss can be diagnosed as conductive loss, sensorineural loss. One case was found to have normal hearing in screening audiometry whereas functional audiometry and

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other E.N.T. findings showed CSOM in the left ear and right ear is normal. Here, the screening audiometry failed to identify the cases since the case had normal hearing in one ear. In another case, it was found the case has normal hearing in the screening audiometry whereas he had bilateral high frequency loss in the functional audiometry. This is because the case could respond normally in low frequencies. Another case was diagnosed as to have high tone hearing loss in the right ear and normal hearing in left ear in the functional audiometry whereas the case was found to have normal hearing in screening test. Here also the test failed to identify the hearing loss.

The results of the test are summarized and it is observed that this procedure will be identified almost all the cases who have got hearing loss in the given group. This procedure fails to identify cases with normal hearing in one ear and cases with normal hearing below 2000 Hz. Using the threshold level in the screening procedure, the 30 dB HL is considered to be normal hearing atleast in one ear and 40 dB is mild loss upto 60 dB is moderate loss and above 60 dB Would indicate severe hearing loss.

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