

## NORMATIVE SPEECH RECOGNITION THRESHOLD IN NOISE (SRT<sub>n</sub>) FOR MALAY MATRIX SENTENCE TEST (MMST) IN OPEN-SET FORMAT

**Lydia Farhana Mustafar Ramdzuan**<sup>1</sup>, Saiful Adli Jamaluddin<sup>1</sup>, Greg O'Beirne<sup>2</sup>

<sup>1</sup> Department of Audiology and Speech-Language Pathology, Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Kuantan Campus.

<sup>2</sup> Department of Communication Disorders, University of Canterbury, New Zealand.

### ABSTRACT

**Introduction:** Speech perception ability in noise is a realistic key indicator of a person's potential to communicate in real-world situations. The Malay Matrix Sentence Test (MMST) is able to provide information about a listener's speech perception ability in noise. It can also be implemented in either open or closed-set test format. The main purpose of this study was to obtain normative speech recognition threshold in noise (SRT<sub>n</sub>) for MMST in the open-set test format.

**Methods:** Fifteen lists including 1 training list containing 20 sentences in each list were presented to 22 normal hearing listeners (Mean:  $6.58 \pm 6.61$  dB HL) aged below 25 years old. The MMST were presented monaurally at a fixed noise level of 65 dB SPL. An open-set presentation mode was used in which the participants were requested to repeat the sentences verbally.

**Results:** Mean SRT<sub>n</sub> for MMST in open-set format was  $-8.34 \pm 0.87$  dB SNR with slope function of  $17.20 \pm 9.62\%$  / dB. A significant training effect of 2.37 dB was observed between the training and initial test list. Repeated measures ANOVA showed no significant differences between lists where,  $F(14, 8) = 0.41$ ,  $p = 0.93$ .

**Conclusion:** This study indicated that homogeneity between lists was comparable which is appropriate for use of repeated measurements. The SRT<sub>n</sub> of open-set format is 1.77 dB higher than the closed-set test format (Mean:  $-10.1 \pm 0.2$  dB SNR) which is consistent with previous studies. This is expected as the listener's option to respond are limited in the open-set test compared to the closed-set test format.

**Keywords:** matrix sentence test, Malay matrix sentence test, speech recognition threshold, speech-in-noise test, open-set

**Corresponding author:** Lydia Farhana Mustafar Ramdzuan ([lydiafarhana94@gmail.com](mailto:lydiafarhana94@gmail.com))