

PERFORMANCE OF A NEWLY DEVELOPED AUTOMATED INTERACTIVE HEARING SCREENING KIT (KASPAI) AMONG SCHOOL-AGED CHILDREN

Lee Sing Yin

This study evaluated the performance of a newly developed Automated Interactive Hearing Screening Kit (KASPAI) among school children aged between 10 to 12 years old. A total of 98 children (males = 43 subjects, female = 55 subjects) with min aged 11;0 years \pm 0;9 years participated in this study. Pure tone hearing screening technique was used to test both ears of subjects. In this study, each subject was required to be tested using KASPAI and portable audiometer were also measured using a diagnostic audiometer. The hearing screening results obtained using KASPAI and portable audiometer were compared with the results obtained from the diagnostic audiometer for frequency 500-4000Hz. The sensitivity, specificity and accuracy of KASPAI and portable audiometer were compared with sensitivity, specificity and accuracy of KASPAI ranged from 100%, 74.9-97.4% and 75.0-97.5% respectively. Meanwhile for portable audiometer, the percentage ranged from 66.7%-100% sensitivity, 92.8-99.5% for specificity and 92.9-99.0% for accuracy. Besides, research findings showed a significant difference ($p < 0.001$) in results for KASPAI with and without the inclusion of 500Hz respectively. In addition, the specificity also increased from 74.35% to 95.81% when 500Hz was excluded from analysis. Moreover, the test-retest reliability of KASPAI measured from 50 subjects showed a good and significant agreement ($K=0.603$, $p < 0.001$). Based on these findings, KASPAI may serve as a potential tool in the hearing screening of children aged between 10-12 years old. However, the use of KASPAI without 500 Hz frequency is recommended to obtain better results.

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