

Concurrent Validity of Synchronous Tele-Audiology Hearing Screening

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Abstract : The Coronavirus Disease of 2019 (COVID-19) pandemic should be taken as a wake-up call on the importance of hearing health care considering amongst other things the electronic methods of communication used. The World Health Organization (WHO) estimated that by 2050, there will be more than 2.5 billion people living with hearing loss. These numbers show that more people will need rehabilitation services. Studies have shown that most people living with hearing loss reside in Low-Middle Income Countries (LMIC). Innovative technological solutions such as digital health interventions that can be used to deliver hearing health services to remote areas now exist. Tele-audiology implementation can potentially enable the delivery of hearing loss services to rural and remote areas. This study aimed to establish the concurrent validity of the tele-audiology practice in school-based hearing screening. The study employed a cross-sectional design with a within-group comparison. The portable KUDUwave Audiometer was used to conduct hearing screening from 50 participants (n=50). In phase I of the study, the audiologist conducted on-site hearing screening, while the synchronous remote hearing screening (tele-audiology) using a 5G network was done in phase II. On-site hearing screening results were obtained for the first 25 participants (aged between 5-6 years). The second half started with the synchronous tele-audiology model to avoid order-effect. Repeated sample t-tests compared threshold results obtained in the left and right ears for onsite and remote screening. There was a good correspondence between the two methods with a threshold average within ± 5 dB (decibels). The synchronous tele-audiology model has the potential to reduce the audiologists' case overload, while at the same time reaching populations that lack access due to distance, and shortage of hearing professionals in their areas of reach. With reliable and broadband connectivity, tele-audiology delivers the same service quality as the conventional method while reducing the travel costs of audiologists.

Keywords : hearing screening, low-resource communities, portable audiometer, tele-audiology

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