International Conference:

Evidence in Global Disability and Health

Applicant Details	
Name:	Tess Bright
Position:	Research Assistant
Institution:	London School of Hygiene and Tropical Medicine
Level of study (if applicable) (e.g. MA, PhD):	MSc
E-mail:	tessmbright@gmail.com
Phone number:	07541 490 569
Preferred presentation format:	**Oral or poster**

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ABSTRACT

Title:	Measuring hearing loss in population-based surveys: evaluation of methodologies and recommendations for future protocols.

Abstract text (limited to 300 words, should include background, methods, results and conclusions):

Background: An estimated 360 million people are affected by disabling hearing loss (DHL) globally. In the context of the recent sustainable development goals (SDGs), there has been a call for increased data collection to monitor progress on disability including hearing loss. The recommended protocol for measuring DHL prevalence at the population-level is based on the 1999 WHO Ear and Hearing Disorders Survey Protocol (WHO-EHDS). Significant logistical challenges for performing these surveys in low and middle income countries (LMIC) exist due to the requirement for skilled hearing healthcare professionals and expensive equipment. Thus, robust data on the prevalence of hearing loss remains scarce. Alternative methods of measuring hearing loss prevalence were explored including: self-reported hearing loss (SRHL) and the use of low-cost smartphone applications. The study aimed to determine if these methods could be incorporated into a revised WHO-EHDS protocol to enable scale-up in LMIC.

Methods: Firstly, data from a population-based survey in India was analysed using Stata in order to compare prevalence of SRHL to the prevalence of clinically measured DHL. Secondly, a review of the most popular commercial app stores by market share (Google Play and Apple Appstore) was conducted. A literature review was then undertaken to determine if apps identified in the app stores review had been validated in peer reviewed literature.

Results: The prevalence of DHL and SRHL were 4.97% and 2.89% respectively. The sensitivity of self-report at accurately identifying DHL was 45.9% whilst specificity was 99.4%. Search queries returned 30 applications that could be used in WHO-EHDS of which 5 were validated in peer reviewed literature. One additional app was identified in the literature that is not yet available commercially. A conflict of interest was declared for several peer reviewed studies. *uHear* was the most frequently cited app with studies determining its validity by comparison with gold standard pure-tone audiometry. The accuracy of *uHear* was variable across these studies.

Conclusions: SRHL underestimated the prevalence of hearing loss as it missed those with moderate hearing loss. It was a good predictor of severe and profound hearing loss. SRHL and smartphone apps may offer more resource efficient ways of measuring hearing loss in LMIC. Further independent research including pilot field studies are required to determine the utility of these different methods for hearing loss surveys in LMICs. These alternative methods could be used to enhance data collection for monitoring the progress of the SDGs with regards to disability.

Deadline for abstract submission: November 30, 2015

Please submit your abstract to: **disabilitycentre@lshtm.ac.uk**

Restricted to one first author abstract per participant.

If you have any questions, please write to:
disabilitycentre@lshtm.ac.uk