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Summary of research

Key words: Hearing, hearing-aid, depression, cognition, fluid intelligence

The overall aim of this project is to establish the impact of hearing difficulty and hearing aids on depression and fluid intelligence. It is estimated that more than 500 million people worldwide have a permanent hearing loss, which is the third leading cause of years lost to disability. It is further estimated that less than 20% of people with a measurable hearing loss are treated with hearing aids. Untreated hearing loss has among other factors been associated with decreased psychosocial well-being, cognitive function, and self-sufficiency, and is the 13th highest contributor to the global burden of disease. This project will perform cross-sectional analyses to determine the relationship between (a) depression and hearing difficulty, and (b) fluid intelligence and hearing difficulty, when controlling for influences by such factors as age, gender, country of birth, other sensory declines (e.g. visual and tactile), and the use of hearing aids. Data only (no samples) from the full cohort will be included in the analyses. Further, statistical modelling will be used to determine if hearing disability is impacting these parameters directly, or via other factors such as age, social isolation, general health, deprivation, memory, and education. The UK Biobank data offer a unique opportunity to study these questions in a large sample of volunteers from the general population. Outcomes of this study will enable governments to make rational decisions about expenditure of public money on hearing aid treatments and clinicians to provide more effective rehabilitation and counselling.