

6th International Conference on **Gynecology and Obstetrics**
 &
 13th International Conference on **Alzheimer's Disease & Dementia**
 &
 28th World Nursing Education Conference
 November 14-15, 2019 Paris, France



Keith N Darrow

Worcester State University, USA

Age-related hearing loss and the connection to dementia and cognitive decline

Statement of the Problem: Hearing loss is estimated to plague nearly 500 million people worldwide-potentially one billion by 2050. With advances in modern medicine extending our lifespans, rates of presbycusis (age-related hearing loss) will increase, and for many it is the result of genetic disposition. The hallmark features are a progressive loss of cells within the cochlea followed by, or in tandem with, a degeneration of nerves throughout the central auditory pathway. This has a major impact on social, emotional and cognitive health due to isolation and depression. Recent reporting indicates that hearing loss may increase the risk of cognitive decline and dementia by 200%-500%. Current treatment with hearing aids is encouraging and indicated to improve quality of life, increase cognitive function and reduce tinnitus the risk of cognitive decline and the progression of dementia. Because approximately 50-80% of people don't treat their hearing loss accordingly, the goal of this study is to understand if new hearing loss treatment technology can enhance semantic features of speech, reduce background noise and increase patient satisfaction.

Methods: Study participants included two groups: 1) new users and 2) current users. Subjects were given the APHAB (Abbreviated Profile of Hearing Aid Benefit) prior to treatment and after 30 days. Four categories were judged pre and post-treatment: ease of communication, reverberation, background noise and aversion to sound.

Results: Results indicate significant improvements in patient experience and auditory capabilities.

Conclusion: A majority of subjects, in 'new user' (81.4%) and 'current user' (96.3%) groups experienced significant benefits across all subscales of the APHAB, including hearing conversation in background noise. Given recent advances in technology and data from this study, more patients over 50 should have their hearing evaluated and treated, thus significantly reducing the chances of developing the devastating effects of dementia and cognitive decline.



Figure 1: Summary of available data relating degree of hearing loss with risk of developing cognitive decline and dementia.

JOINT EVENT

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Recent Publications:

1. Carniel C Z, Sousa J C F, et al., (2017) Implications of using the Hearing Aids on quality of life of elderly. *Communication Disorders, Audiology and Swallowing (CoDAS)* 29(5):e20160241.
2. Desjardins J L (2016) Analysis of performance on cognitive test measures before, during, and after 6 months of hearing aid use: a single-subject experimental design. *American Journal of Audiology* 25(2):127-41.
3. Henry J A, McMillan G, Dann S, et al., (2017) Tinnitus management: randomized controlled trial comparing extended-wear hearing aids, conventional hearing aids, and combination instruments. *J Am Acad Audiology* 28(6):546-561.
4. Livingston G, Sommerlad A, et al., (2019) Dementia prevention, intervention, and care. *The Lancet*. 390(10113):2673-2734.
5. Maharani A, Dawes P, et al., (2018) Longitudinal relationship between hearing aid use and cognitive function in older Americans. *Journal of American Geriatric Society*. 66(6):1130-1136.
6. A C Fleischer, R Romero, F A Manning, et al. (Eds.) (1991) *The Principles and Practice of Ultrasonography in Obstetrics and Gynecology* (4th edition), Appleton & Lange, East Norwalk pp. 597-607.

Biography

Keith N Darrow is a Harvard Medical School and MIT trained Neuroscientist and Clinical Audiologist. He has published numerous diverse research studies. In addition to the association of dementia and cognitive decline, his most notable research reports include the use of optogenetics to stimulate the auditory system and revealing the role of the auditory lateral olivocochlear efferent system and its ability to 'balance' the sensitivity of the two ears and provide protection from noise exposure. He teaches both graduate and undergraduate courses in Hearing Science, Audiology, Research and Assessment and Treatment of Balance Disorders. In addition to speaking at symposiums across the country, he is the Author of an informative and profoundly practical book about hearing loss, "*Stop Living in Isolation!*" which reveals his innovative approach to treating hearing loss.

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