



## Cognition in Clinical Practice: The Clinician and the Patient

Lindsey E Jorgensen\*

*Department of Communication Sciences and Disorders, The University of South Dakota, USA*

As a clinically trained audiologist and researcher, I feel that it is important to always provide the best services to my patients and provide the most accurate information for my students. This starts with teaching patients and students to demand evidence based practice. Evidence based practice is a term that has been used over and over in clinical practice. We expect our students and clinicians to apply research to every day clinical decisions in the care of patients in all professions. To be able to apply the most recent and accurate evidence to clinical practice, clinicians must have access to research findings. Many clinicians are not associated with organizations (e.g. universities) that purchase subscriptions to journals; therefore, they must purchase these articles on their own, rely on non-peer reviewed trade journals or rely on the available abstract for the evidence for clinical practice. This leads to frustration and inaccurate clinical application of information. Also, with younger patients coming to receive services, many of them are demanding access to information prior to their appointment to become more informed consumers. Open-source journals allow anyone to access the information necessary for best clinical practice; this includes clinicians, researchers, students and patients. If everyone has access to the most recent evidence, in turn, it will better improve the researcher, clinician patient relationship and improve the services we provide.

Providing the best services to patients requires knowledge of research that exists and where gaps in the literature exist. For example, some investigators have suggested a strong link between hearing loss and cognitive decline that they argue cannot be accounted for by changes directly related to peripheral hearing loss, such as reduced audibility and impaired speech perception. Large epidemiologic studies have suggested an association between hearing loss and cognitive decline in the elderly, specifically, that hearing loss increases in occurrence and severity with age, but is more common and severe in older adults with significant cognitive impairment or dementia than in normally aging populations. Many of the observed behaviors reflective of reduced cognitive status (e.g. repeating questions, social isolation) are the same as those found with undiagnosed hearing loss. As such, the links suggested by these studies might not be as direct as suggested by the authors. An issue with some of the studies on dementia and hearing loss is how the reduced audibility associated with hearing loss could have influenced the diagnosis of dementia. Peripheral hearing loss does

have a significant impact on the tests given by general practitioners to diagnose dementia. Furthermore, cochlear dysfunction and reduced auditory processing associated with peripheral hearing loss adversely affect speech perception and listening effort, which in turn could negatively impact cognition, but also could erroneously lead to the diagnosis of dementia, if a person is unable to adequately hear test instructions and test questions.

The most common treatment of hearing loss is the fitting of hearing aids, but the goal of most hearing aid fittings is to return sound audibility and not necessarily improved intelligibility. Furthermore, few studies have evaluated the relationship of improved audibility to speech perception and cognition in elderly populations. As such, it is unclear whether the treatment of hearing loss with hearing aids prevents or delays cognitive decline and dementia.

The difficulty of hearing in noise and in other, difficult listening situations by aging adults is not only a consequence of reduced audibility, as it also is a complaint of older listeners with normal hearing thresholds. Some have suggested that speech perception difficulties are primarily due to lack of audibility; however, others have suggested other factors could play a role in older listeners. Interestingly, patients with mild traumatic brain injury (mTBI) report similar difficulties.

Questions remain as to the interaction of the auditory system, at all levels and cognition. This is not just a question for the aging cognitive system, but also those whose cognitive system has been disrupted due to other impairments, such as traumatic brain injury. Understanding the interaction between the auditory system, speech perception, emotional and social function, and changes in cognition could lead to better management of those with aging auditory systems and other clinical populations.

These questions are ones that should be asked by all clinicians seeing older patients, or patients who have had cognitive problems. Additionally, many questions such as these are first observed by clinicians. If a clinician has access to evidence, such as through an open-source journal, they are more likely to question gaps in the literature. Knowledge of these gaps and discussions of further research can only further our profession and increase the respect for our profession.

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\*Corresponding author: Lindsey E Jorgensen, Department of Communication Sciences and Disorders, The University of South Dakota, USA, Tel: 605-677-6678; Fax: 605-677-5767; E-mail: [Lindsey.Jorgensen@usd.edu](mailto:Lindsey.Jorgensen@usd.edu)

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