THE GRADUATE COLLEGE OF THE
UNIVERSITY OF OKLAHOMA HEALTH SCIENCES CENTER

ANNOUNCES THE FINAL EXAMINATION OF

Laura Gaeta

FOR THE DEFENSE OF THE DOCTOR OF PHILOSOPHY DEGREE
GRADUATE COLLEGE
Communication Sciences and Disorders

Friday, July 7, 2017, 2:00 pm
Allied Health Building, Room 1047

The Impact of Reduced Audibility on Cognitive Screening Assessment Scores

COMMITTEE IN CHARGE: Andrew B. John, Ph.D. , Chair; Carrie A. Ciro, Ph.D., OTR/L, F.A.O.T.A.; Carole Johnson, Ph.D., Au.D., CCC-A; Mary A. Hudson, Ph.D., CCC-A; Jo Azzarello, Ph.D., R.N.

ABSTRACT: The interaction of audition and cognition has been of interest to researchers and clinicians, especially as the prevalence of hearing loss and cognitive decline increases with advancing age. A consequence of the interaction between hearing and cognitive change is erroneous interpretation of incorrect responses to unheard or misheard verbal questions. The purpose of this study was to examine the effects of aided and unaided sensorineural hearing loss (SNHL) on the Mini-Mental State Examination (MMSE), a common bedside cognitive screening instrument. A 1:1 gender-matched case-control design was employed for this study. Thirty older adults (60 to 80 years old) with mild to moderately severe SNHL and hearing aids (cases) and thirty young adults (18 to 35 years old) with normal hearing (controls) served as participants for this study. Case participants were administered a recorded version of the MMSE in three counterbalanced conditions (unaided, with hearing aids, and with a personal listening device) in background noise. Control participants were administered a digitally filtered version of the MMSE that reflected the hearing loss of the matched case participant. Performance on the MMSE was scored using standard criteria and response times to test items were measured. Between-group analyses revealed no significant difference in MMSE score or response time across all three conditions, suggesting that any reduction in score on the MMSE due to reduced audibility can be remediated through the use of amplification (hearing aids or a personal listening device). Response times to MMSE questions assessing registration, attention, and recall were longer compared to questions assessing orientation, language, and praxis. The findings of this study provide evidence of the impact of audibility on MMSE scores, highlighting the need to confirm audibility before administering cognitive screening assessments to older adults. Failure to consider audibility and optimize communication when administering these assessments can lead to invalid results (e.g., false positives or missed information), misdiagnosis, and inappropriate recommendations for medication or intervention.