

Conclusions: The 5C-CPT is a test of attention and cognitive control available for human testing, reverse-translated from rodent studies. The normative data generated here will enable future comparisons of data without the need for additional control studies. Furthermore, comparing these normative data to manipulations will enable further comparisons to rodent testing, with manipulations relative to baseline becoming more meaningful. Thus, the 5C-CPT is a viable tool for conducting cross-species translational research toward developing novel therapeutics that treat dysfunctional attentional and cognitive control.

Categories: Cognitive Neuroscience

Keyword 1: attention

Keyword 2: schizophrenia

Keyword 3: bipolar disorder

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18 Which cognitive complaints among older adults are more concerning than others? Analysis of items in a Subjective Cognitive Decline Questionnaire

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Objective: Subjective Cognitive Decline (SCD) is the self-reported experience of one's own declining cognition prior to objective impairment on clinical neuropsychological testing. While SCD is a promising marker of preclinical Alzheimer's disease (AD), information is needed to determine which cognitive complaints reflect typical aging versus prodromal degenerative disease. The objective of the current study was to examine the extent to which specific cognitive complaints were associated with two clinical outcomes including: 1) lower performance on

cognitive tasks sensitive to preclinical AD; and 2) seeking help (i.e., medical attention) for cognitive difficulties.

Participants and Methods: The current sample consisted of 175 healthy older adults (56 Male, 119 Female), aged 51 to 90 (M=72.67, SD=7.12) with a mean education of 16 years (SD=2.3 years) who performed > -1.5 SD on clinical neuropsychological testing. 26.8% of the sample self-reported as race/ethnic minorities (e.g., Hispanic or Non-Hispanic, Black, Asian, Other.) Participants completed a 20-item SCD questionnaire assessing perceived cognitive difficulties in comparison to same aged peers, and tests shown to be sensitive to preclinical AD including the Face Name Associative Learning Test and the Loewenstein-Acevedo Scales for Semantic Interference and Learning. Participants were coded as having sought help for SCD (39%) if they entered the current study from a clinical referral source, OR if they entered through a non-clinical referral stream but indicated that they had previously seen a doctor specifically for memory concerns or spoken to their doctor about memory concerns. Chi square tests were used to examine relationships between SCD item endorsement and help-seeking; ANOVAs were used to the extent to which item endorsement was associated with performance on cognitive tests. Results were considered significant at $p < .05$.

Results: Three SCD items were associated with both lower cognitive test scores and having sought help for SCD (p values ranged from $< .001$ to $.02$). Items included difficulty remembering the date or day of the week and remembering a few shopping items without a list. One non-memory item was also associated with both outcomes including difficulty thinking ahead. In contrast, six items were not related to either outcome of interest. Such items included difficulty remembering appointments, remembering where you put things like keys, following a map to a new location, doing two things at once, understanding what you read, or understanding what people say to you. The remaining eleven items explore the extent to which selective associations exist with either help-seeking or cognitive performance.

Conclusions: Patients and clinicians alike are often unsure about which cognitive difficulties are typical for aging and which may be the cause for further workup. Current results suggest that certain complaints among cognitively healthy older adults may be cause for more thorough evaluation or monitoring. These

complaints include specific memory and non-memory concerns. Future work is needed to determine if these complaints predict future cognitive decline or conversion to Mild Cognitive Impairment.

Categories: Cognitive Neuroscience

Keyword 1: cognitive functioning

Keyword 2: memory complaints

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19 Auditory and Cognitive Function in Adults Living With and Without HIV

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Objective: Hearing consists of peripheral components (outer and middle ear, cochlea) and the central auditory system (cochlear nuclei to the auditory cortex). Speech perception relies on peripheral hearing abilities (i.e., pure-tone thresholds) and central auditory processing (CAP) and cognitive functioning. Specifically, working memory, executive function, attention, and verbal functioning allow for speech understanding. As a result, CAP deficits are also influenced by peripheral hearing sensitivity and cognitive functioning. Assessing CAP deficits can be difficult because of these complex interactions. Prior work has shown persons living with HIV (PWH) are at higher risk for sensorineural hearing loss compared to persons living without HIV (PWOH) after adjusting for age, sex, and noise exposure. Further, HIV is a risk factor for cognitive impairment, one example being Alzheimer's disease (AD) and its precursor, Mild Cognitive Impairment (MCI), with auditory dysfunction occurring in earlier stages of AD. Therefore, the purpose of this study was to evaluate: 1) the peripheral hearing sensitivity and CAP in PWH and PWOH; and 2) the

association between cognitive function measures and CAP in PWH and PWOH.

Participants and Methods: Participants included 59 PWH (39 men and 20 women, mean age=66.7 years [SD=4.4 years]) and 27 PWOH (13 men and 14 women, mean age=71.9 years [SD=7.1 years]). Participants completed a standard neuropsychological battery assessing the domains of learning, recall, executive function, working memory, verbal fluency, processing speed and motor. Raw scores were transformed to demographically corrected, domain T-scores. Cognitive function was normal for 39 (66.1%) PWH and 16 (59.3%) PWOH while 43 (72.9%) PWH and 17 (63.0%) PWOH were determined to have MCI. Participants with dementia were excluded. Participants also completed a hearing assessment, a portion of which consisted of pure-tone thresholds, peripheral hearing measure, and dichotic digits testing (DDT), a CAP measure. Pure-tone air-conduction thresholds were obtained at octave frequencies from 0.25 through 8 kHz, including 3 and 6 kHz. A pure-tone average (PTA) was calculated from 0.5, 1, 2, and 4 kHz thresholds for each ear. The DDT involves the presentation of numbers from 1 to 10, excluding 7, in which two different digits are presented to one ear while two other digits are simultaneously presented to the opposite ear. The outcome of DDT is percent correct.

Results: PWH had slightly lower (i.e., better) mean PTAs in both ears compared to PWOH, but this was not statistically significant. Conversely, PWH had lower percent correct DDT results compared to PWOH, but this difference was also not statistically significant. Participants with impairment in verbal fluency, executive functioning, and working memory had significantly worse DDT results by approximately 10%, but only for right ear data.

Conclusions: PWH in our sample had better hearing than PWOH, which can be explained by PWH having a lower mean age. PWH had poorer DDT results, however, indicative of CAP deficits rather than peripheral hearing problems. Poor right ear DDT was associated with impairments specifically in frontal-based cognitive processes with an executive component.

Categories: Cognitive Neuroscience

Keyword 1: cognitive processing

Keyword 2: auditory processing (normal)