

(SCWT), and Letter (FAS) and Semantic (Animals) Fluency as part of a larger standardized battery. Patients were also administered the Short Assessment of Health Literacy-English (SAHL-E). All included patients had <2 performance validity test failures. The sample was 50% non-Hispanic Black, 31.8% non-Hispanic White, 15.9% Hispanic, 2.3% Asian/Pacific Islander, and 54.5% female. Diagnostically, 50.9% of the sample were cognitively normal, 36.4% had mild cognitive impairment, and 15.9% had dementia. Two multiple regressions were conducted to evaluate (1) the predictive power of EF on the SAHL-E, and (2) the moderating impact of estimated premorbid IQ and demographics via the TOPF on the relationship between EF and SAHL-E.

Results: The first regression was not significant ($p=.168$) with FAS as the only independent predictor of SAHL-E performance ($\beta=.387$, $p<.05$). The overall model was significant with the addition of the TOPF ($p<.001$). FAS accounted for 29% ($\beta=.336$, $p<.05$) of the variance in SAHL-E when controlling for TOPF and other measures of EF.

Conclusions: These results indicate that novel generativity is a significant predictor of health literacy beyond the influence of estimated premorbid intelligence and demographic factors. Importantly, these findings suggest that broadly speaking EF abilities have minimal impact on health literacy, although reduced verbal generativity to letter cues is associated with reduced health literacy. Identification of at-risk populations such as individuals with limited health literacy is clinically important and can make way for early intervention. Health information targeted at this at-risk population should go beyond vocabulary and more specifically reduce the burden on verbal fluency.

Categories: Language and Speech Functions/Aphasia

Keyword 1: fluency

Keyword 2: language

Keyword 3: premorbid functioning

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71 Neuropsychological Intervention for Developmental Stuttering using Delayed Auditory Feedback Application

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Objective: Brain science demonstrates that people who stutter (PWS) exhibit insufficient activation in the auditory speech area of the left hemisphere (Kikuchi, et al. 2011 ; Garnett, et al. 2018). In this study, we reported the auditory brainstem response of PWS: in PWS with moderate and severe impairment, significantly longer interpeak latencies (IPLs) between waves I and V (IPL [I–V]) of the right ear than those of the left ear were observed. However, in PWS with mild impairment, the IPLs (I–V) of the left ear were significantly longer than those of the right ear (Anzaki et al., 2020). We considered that the differences in the IPLs (I–V) between the right and left ears cause monitoring disturbance in communication, which results in developmental stuttering. It has been reported that stuttering was improved by delayed auditory feedback (DAF) (Stromsta, 1956; Sakai, 2008). Thus, we improved the DAF system and developed an application that can be used by PWS to listen to their own voices with no differences in the IPLs (I–V) between their left and right ears. We verified the effectiveness of this application.

Participants and Methods: This study included five male adults with developmental stuttering (ADSs), with a mean age and handedness index of 36 years and 84, respectively. The application was adjusted so that the IPLs (I–V) of the left and right ears were the same. For example, one ADS showed that the IPL (I–V) of their right ear was 0.5 msec longer than that of their left. Subsequently, the application was adjusted so that the IPL (I–V) of his left ear would be delayed by 0.5 msec. We asked the participants to use the application for six months when free talking and reading aloud. Using the Japanese Standardized Test for Stuttering (JSTS) (Ozawa, et al. 2013), we compared their disfluencies with and without the application.

Results: As per the JSTS, the stuttering severity in all participants improved. Case 1, who had severe impairment (level 5), showed a moderate improvement (level 4), Cases 2 and 3, who had moderate impairment (level 4), showed a mild

improvement (level 3), and Cases 4 and 5, who had mild impairment (level 3), exhibited a normal level of improvement (level 1). We calculated the z-scores of the improvement rates of the JSTS based on the standard deviations according to the severity (Anzaki, 2019). The z-scores of Case 4 and 5 were 4.01 and 2.01, respectively, indicating a significant improvement.

Conclusions: In our report last year, although ADSs with moderate and severe impairment showed improvement by stimulation intervention on the left hemisphere through the right ear, those with mild impairment exhibited only a slight or no improvement as per the JSTS (Anzaki, et al. 2021). The application developed in this study was found to significantly improve the disfluencies of all the participants as per the JSTS, especially those with mild impairment. Therefore, we considered that stuttering disorders are layered; ADSs have auditory monitoring disorder in the base.

Categories: Language and Speech Functions/Aphasia

Keyword 1: speech

Keyword 2: language: development

Keyword 3: auditory processing disorder

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72 Boston Naming Test Performance Improves with Increasing Age: What's Wrong with this Picture?

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Objective: As word finding or “naming” impairment is a symptom of multiple neurological conditions, naming assessment is an integral component of most neuropsychological evaluations. For decades, the Boston Naming Test (BNT) has been, and remains, the most widely used measure of naming. Although it has been shown that naming is generally stable from young adulthood through middle age, we have observed, clinically, that young adults tend to have greater difficulty on the BNT than older adults. Considering that the BNT was developed more than 50 years ago, and that language and culture change over time, we hypothesized that 1) increasing age would be associated with

stronger performance on the BNT, whereas 2) there would be no association between age and naming performance on more recently developed naming measures.

Participants and Methods: Participants were healthy adults who served as normative subjects in the revision study of the Auditory (ANT) and Visual Naming (VNT) Tests. Due to known effects of education level on BNT performance, we excluded those with less than 16 years of education, targeting young adults through middle age, resulting in 118 adults, 20 through 50 years of age (mean age: 32.9 ± 9.2 years; mean education: 16.8 ± 1.2 years; mean FSIQ: 106.0 ± 12.6). All participants were native English speakers or learned English by age 5 and were fully educated in English. Untimed accuracy (i.e., response within 20 seconds) is the standard performance measure for the BNT; the ANT and VNT additionally include tip-of-the-tongue (TOT) scores, which incorporate response time and reliance on phonemic cueing (TOT score = number of items named in > 2 seconds but < 20 seconds, plus items named correctly after 20 seconds, following a phonemic cue). Pearson correlations examined the relation between age and naming performance on the BNT, ANT and VNT.

Results: Pearson correlations revealed a small but significant, positive correlation between age and BNT performance ($r = .22$, $p = .017$), yet no correlation between age and performance on the ANT (ANT Accuracy: $r = .05$, $p = .60$, ANT-TOT: $r = -.14$, $p = .12$) or VNT (VNT Accuracy: $r = .04$, $p = .67$, VNT-TOT; $r = -.03$, $p = .72$).

Conclusions: In this sample of healthy adults, naming performance improved with increasing age on the BNT; however, while vocabulary knowledge may broaden, naming efficiency should not improve with age. By contrast, we found no relation between age and naming performance on the more recently developed ANT and VNT. Results underscore the need to revise test stimuli on verbal measures, particularly those that assess naming, and suggest caution in interpreting BNT performance in young adults, as poor BNT performance might not accurately represent their true naming ability.

Categories: Language and Speech Functions/Aphasia

Keyword 1: naming

Keyword 2: assessment