Discussion: The use of adapted video content encourages person-centered communication and empathy, thereby contributing to the maintenance of social engagement among the elderly.

Conclusions: These results provide evidence for the benefits of using adapted video content to promote communication in old age and point to innovative avenues in the study of co-viewing effects on communication and engagement in individuals living with major neurocognitive disorders.

P14: How does dorsolateral prefrontal cortex plasticity differ across the Alzheimer's disease spectrum?

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Objectives: Patients with mild cognitive impairment (MCI) employ compensatory cognitive processes to maintain independence in day-to-day functioning as compared to patients with Alzheimer's dementia (AD). The dorsolateral prefrontal cortex (DLFPC) supports cognitive compensation in normal aging and MCI. Using Paired Associative Stimulation combined with Electroencephalography (PAS-EEG) we have previously shown that patients with AD have impaired DLPFC plasticity compared to healthy control (HC) individuals. The aim of this study is to examine whether DLPFC plasticity in individuals with MCI is preserved compared to those with AD and HC, serving as a potential mechanism underlying cognitive compensation in MCI.

Methods: We analyzed a combined cross-sectional data of 47 AD, 16 MCI, and 40 HC participants from three different studies that assessed their DLPFC plasticity using PAS-EEG. PAS-EEG assesses DLPFC plasticity via the induction of Long Term Potentiation (LTP)-like activity, thereby referred to as PAS-LTP. Using multiple regression, we compared PAS-LTP in MCI to PAS-LTP in AD and HCs, after adjusting for age and gender.

Results: Among the 47 participants with AD (mean [SD] age = 75.3 [7] years), 29 were women and 18 were men; among the 16 participants with MCI (mean [SD] age = 74.8 [6] years), 11 were women and 5 were men; and among the 40 HCs (mean [SD] age = 76.4 [5.1] years), 22 were women and 18 were men. After adjusting for age and gender, there was an impact of diagnostic group on PAS-LTP [$F(2,95) = 4.19$, $p = 0.018$, between-group comparison $\eta^2 = 0.81$]. Post-hoc comparisons showed that participants with MCI had a higher PAS-LTP (mean [SD] = 1.31 [0.49]) than those with AD (mean [SD] = 1.09 [0.28]) (Bonferroni corrected $p = 0.042$) but not different from PAS-LTP in HCs (mean [SD] = 1.25 [0.33]) (Bonferroni corrected $p = 1.0$).

Conclusions: Our findings indicate that plasticity is preserved in the DLPFC among individuals with MCI, supporting the hypothesis that DLPFC plasticity contributes to cognitive compensation towards delaying progression to AD. Thus, further enhancement of longer preservation of DLPFC plasticity in individuals with MCI could further delay the onset of AD in this population.

https://doi.org/10.1017/S1041610224001972 Published online by Cambridge University Press