Pearson correlations, and path analysis. **Results:** The characteristics of the sample are: 78±8 years of age, 16±3 years of education, 20±4 in the Mini-Mental State Examination scores. Pearson correlations showed that executive function, aerobic fitness, physical function, and BPSD were significantly associated with ADL (r = -.4, .5, .6, -.4 respectively, $p < .05$), but not global cognition. Path analysis further indicates that executive function, physical function, and BPSD have a direct effect on ADL. Aerobic fitness affects ADL indirectly via its effects on physical function, global cognition, and BPSD. The model fit statistics were $Chi^2(15) = 89.2, p < .001$ (see Figure 1). **Conclusions:** Executive function, physical function, and BPSD are proximal predictors of ADL. Aerobic fitness, in contrast, is a distal predictor and influences ADL via its effects on proximal predictors in older adults with mild to moderate AD. Those findings support the validity of the FIT-AD Model and suggest that interventions that target at aerobic fitness such as aerobic exercise will likely affect multiple predictors of ADL and generate the most effect.

O3-11-05 LIVING WITH POSTERIOR CORTICAL ATROPHY 'ONE DAY AT A TIME'

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Background: Posterior Cortical Atrophy (PCA) is a rare form of Alzheimer's disease which is usually early in onset and causes decline in visual processing leaving memory, insight and language relatively intact. This allows people with PCA and their carers to offer unique insights in relation to the stresses associated with the disease process and the adoption of coping strategies that are situated within both the physical and social environments. This also permits the development of further understandings of dementia-related visual impairment for those with more typical amnestic presentations of Alzheimer's disease. **Methods:** This study aimed to investigate how individuals with PCA and their carers use and/or adapt the physical and social environment to cope with cognitive changes that impact on independence. We undertook in-depth individual and dyadic interviews with 20 people with PCA and a comparative sample of 17 people with young onset typical Alzheimer's disease (N=37). Findings were analyzed using a thematic approach assisted by Atlas.ti. **Results:** These dyads continually adjusted their environments to minimize the stress associated with cognitive decline while maximizing on those abilities less affected. Adjustments were largely informed by experience rather than expert advice. Common changes to the physical environment were the introduction of visual cues (e.g. coloured dots to identify objects), strategic use of lighting (e.g. keeping the bathroom lit), removing clutter and using assistive technology such as talking clocks. The social environment was modified by disclosing their PCA diagnosis, socializing in familiar settings, and 'normalizing' the situation by preserving, as much as possible, his/her pre-disease identity. The tensions between continuity and change seemed to be managed "one day at a time". **Conclusions:** The physical and social adaptations were reported to be of equal importance to minimize the impact of dementia-related visual impairments. The overall efficacy of any modification was contingent upon the acceptability of the adaptation, the extent of the financial and/or emotional investment, and, importantly, the individual with PCA's ability to exercise agency to maintain engagement in his/her external world. The resourcefulness of these dyads was demonstrated by their ability to continually adapt and respond to changes as the disease progressed.

O3-11-06 WHO'S AFRAID OF ALZHEIMER'S DISEASE? THE INFLUENCE OF PSYCHOSOCIAL AND COGNITIVE FACTORS ON THE PERCEIVED THREAT OF ALZHEIMER'S DISEASE AMONG A REPRESENTATIVE SAMPLE OF U.S. ADULTS

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Background: Numerous strategies are emerging to delay onset and detect prodromal stages of Alzheimer's disease (AD). Health behavior theories suggest that perceived threat of AD (i.e., beliefs and worries about one's susceptibility to disease) will be an important predictor of who takes action to reduce dementia risk and/or seek out formal cognitive evaluation. The present study examined psychosocial and cognitive factors related to perceived AD threat. **Methods:** Respondents were 1,641 adults (mean age: 64; 54% female; 82% White) who completed a brief survey module in the Health and Retirement Study, a longitudinal study of the U.S. population over age 50. A composite measure of perceived AD threat was created from three survey items that assessed perceptions of AD risk and worry. Multivariate linear regression was used to identify demographic, psychosocial (AD knowledge, beliefs, personal experiences, and depressive symptoms), and cognitive factors (self-rated memory, and cognitive function) associated with perceived AD threat. **Results:** Multivariate analyses revealed that perceived threat was significantly higher for those aged 50-64 than those 75 and over. No differences by gender, race, education, or marital status were found. Controlling for demographic characteristics, those with a family history of AD had significantly greater perceived threat than those with no experience. Stronger beliefs that stress or genetics are important AD risk factors were significantly associated with greater perceived threat, as was having a greater number of depressive symptoms. Lastly, perceived AD threat was significantly higher for those with poorer self-rated memory, but no significant associations were found with objectively measured cognitive function. **Conclusions:** This study showed that family history, causal beliefs, depressive symptoms, and

self-reported memory concerns are associated with higher perceived threat of AD. Given the projected rise in prevalence of AD, and an emerging era of AD prevention, there is a growing need to determine what factors are likely to drive uptake of health care services and how services can best be delivered to patients and families. Understanding perceived AD threat may help to inform health care professionals when assessing patients' memory complaints, as well as practice and policies centered on early and accurate diagnosis.

TUESDAY, JULY 26, 2016
ORAL SESSIONS
O3-12
BIOMARKERS: EYES AND NOSES IN THE SEARCH FOR BIOMARKERS FOR DEMENTIA

O3-12-01 BOTH ODOR IDENTIFICATION AND AMYLOID STATUS PREDICT MEMORY DECLINE IN OLDER ADULTS

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Background: Odor identification can be inexpensively tested using the 40-item University of Pennsylvania Smell Identification Test (UPSIT), and odor identification deficits have been shown to predict cognitive decline in both community-based and memory clinic-based cohorts(1,2). We compared the predictive utility of odor identification to that of amyloid status determined by ^{11}C-Pittsburgh Compound B (PIB) PET or CSF analysis. **Methods:** UPSIT score and amyloid status were determined for 81 subjects (55 with amnestic MCI and 26 controls, age 71 $\pm$ 7 years, 56% female, education 16 $\pm$ 3 years) who had either PIB imaging or lumbar puncture at baseline, plus at least 6 months follow-up. Amyloid-positivity was defined as either CSF $A\beta_{42}<$ 192 pg/mL or global PIB uptake $>$ 1.5. Decline was defined as decrease of 1 SD over 4 years or 0.5 SD over 2 years on composite z-score from Logical Memory 1, Visual Reproduction, and Free and Cued Selective Reminding Tests. Data from MCI patients and controls were combined to increase statistical power. Logistic regression and Receiver Operating Characteristic Curve analysis were conducted to test predictability of amyloid-positivity and UPSIT score on memory decline. **Results:** At follow-up, 67% of participants showed memory decline. After correcting for age, gender, and education, amyloid-positivity predicted decline (OR = 7.31; 95% CI = 1.330, 40.234; p = 0.0222) while UPSIT score, as a continuous variable, did not (OR = 1.040; 95% CI = 0.944, 1.145; p = 0.429). However, participants with UPSIT score $<$ 35 were more likely to have memory decline than those with UPSIT score $\geq$ 35 (OR = 4.03; 95% CI = 1.026, 15.84; p = 0.0459). **Conclusions:** Both UPSIT score and amyloid status predict memory decline. While these results suggest that amyloid status may be a stronger predictor, younger age, higher education, and shorter follow-up in this study may explain why UPSIT did not predict decline as strongly as in earlier studies. A larger study with longer follow-up may better determine the ability of odor identification to predict memory decline in participants with high cognitive reserve.
References: 1. Devanand, et al. Neurology. 2015; 84:182-9. 2. Devanand, et al. Biol Psychiatry. 2008; 64: 871–9.

O3-12-02 PREDICTIVE UTILITY OF ENTORHINAL CORTEX THINNING AND ODOR IDENTIFICATION TEST FOR TRANSITION TO DEMENTIA AND COGNITIVE DECLINE IN AN URBAN COMMUNITY POPULATION

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Background: Neuropathology in the olfactory system occurs in the early stages of Alzheimer's disease (AD). Impairment in odor identification, evaluated with the 40-item University of Pennsylvania Smell Identification Test (UPSIT), predicted dementia transition and cognitive decline in a community-based study. The purpose of this study was to examine the predictive utility of the UPSIT on transition to dementia and cognitive decline as it relates to neurodegeneration in the entorhinal cortex. **Methods:** 397 Participants (age 79.855.21 years, 67% female, education 10.824.89 years) from a multiethnic community cohort in North Manhattan, non-demented at baseline, who had both MRI and UPSIT, were followed over four years. Cortical thickness in the entorhinal cortex was computed using the Freesurfer (v5.1). Composite cognitive domain scores were derived for memory, language, and visual-spatial ability. Cognitive decline was defined as decrease of 1 standard deviation (SD) over 4 years or 0.5 SD over 2 years on composite scores in at least one cognitive domain. **Results:** During follow-up, 12.6% of participants developed dementia and 19.8% were classified as cognitive decliners. 63% of decliners and 5% of non-decliners developed dementia (Odds Ratio OR 10.27; p<0.0001). UPSIT (Hazard Ratio HR 1.74 per 1SD; p<0.001) and entorhinal cortical thickness (HR 1.50 per 1SD; p=0.012) predicted the transition to dementia controlling for age, education, gender, language of UPSIT administration (English or Spanish), functional status and intra-cranial volume. UPSIT predicted cognitive decline (OR 1.49 per 1SD; p=0.005), but entorhinal cortical thickness was at trend-level in this prediction (OR 1.08 per 1SD; p= 0.065) controlling for covariates. Entorhinal cortical thinning was significantly associated with UPSIT among participants who transitioned to dementia (r=0.48, p<0.0001), while no association was found in cognitive decliners (r=0.09, p=0.896). **Conclusions:** Odor identification impairment, and to a lesser degree entorhinal cortical thickness, were predictors of the transition to dementia. Their high correlation among individuals who transited to dementia supports the view that odor identification deficits are related to neurodegenerative changes in the entorhinal cortex during the progression of AD. The findings indirectly suggest that impairment in odor identification may precede thinning in the entorhinal cortex in the early clinical stage of AD.