

and anxiety (Depression, Anxiety, and Stress Scale-21), social support (Medical Outcomes Study Social Support Survey), health-related quality of life (Short Form-36), and health promotion self-efficacy (Self-Rated Abilities for Health Practices Scale). In this single-group pre-post study, we recruited 75 community-living adults with access to telephone/video-conferencing technology to participate in six 30-45 minute sessions with trained medical students over a two-month period. The mean age of participants was 72.4 years (58.7% female), with 80% reporting two or more chronic conditions. No participants were diagnosed with COVID-19 during participation. Paired sample t-tests showed significant improvement in health directed behaviour ( $p < .001$ ,  $d = 0.45$ ) and self-efficacy ( $p < .001$ ,  $d = 0.44$ ), but significant decrease in mental health-related quality of life ( $p < .001$ ,  $d = -1.69$ ). Overall, COACH may help improve health directed behaviour and health promotion self-efficacy, despite decreases in mental health possibly associated with COVID-19 restrictions.

#### **A VIRTUAL COMPANIONSHIP INTERVENTION REDUCES LONELINESS DURING THE COVID-19 PANDEMIC**

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Loneliness and social isolation are established risk factors for many clinical conditions yet few scalable interventions exist. Papa Inc. is a national service that pairs older adults with “Papa Pals” (empathetic, laypeople) who provide companionship and assistance with everyday tasks. Participants have free access if their Medicare Advantage plan offers it. During the COVID-19 pandemic, Papa provided virtual companionship visits via telephone or video. This study evaluated the impact of virtual companionship visits on loneliness status (UCLA 3-item Loneliness Scale) during the COVID-19 pandemic. The sample ( $N=894$ ) included adults ages 65+ who identified as lonely at baseline and who completed at least one virtual visit between March 18, 2020 and December 31, 2020. Virtual visits were classified into four categories based on participants’ total number of visit minutes: Low (124 ave min), Medium Low (ML) (305 ave min), Medium High (MH) (567 ave min), and High (1360 ave min). Lonely and severely lonely participants engaged a mean of 573 and 673 minutes in the program, respectively. Improvement in loneliness status was associated with greater use of minutes for the ML and MH participants compared to Low participants (ML OR: 1.46 95CI: 1.00 - 2.11, MH OR 1.65 95CI: 1.13 - 2.40). These findings indicate that a virtual companionship intervention can be an impactful and scalable tool for older adults who want to age at home and have limited social support, especially during the uncertain COVID landscape. Further research is warranted to understand persistent loneliness.

#### **ACETYLATION OF TAU INDUCES ALZHEIMER'S DISEASE-ASSOCIATED TAU IN TRANSGENIC MICE**

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Alzheimer’s disease (AD) is a neurodegenerative disorder that is characterized by neurofibrillary tangles (NFTs) and

amyloid beta plaques. These NFTs are made up of aggregated tau proteins. Tau is involved in stabilizing microtubules and does not usually display aggregation. Acetylation of tau protein causes an increase in tau aggregation but its role in AD progression is still not well understood. I hypothesized that enhanced acetylated tau results in an increase in AD-like tau pathology. To test this, a murine prion promoter-tauKQ transgene was injected into the mouse fertilized oocyte. The tauKQ mutation alters lysine to glutamine to mimic acetylation of tau. Nontransgenic mice were used as controls. AT8 and GT-38 antibodies were used in immunohistochemistry (IHC) to target phosphorylated tau and AD-associated tau, respectively. GT-38 is conformation-dependent and requires 3R and 4R tau isoforms which makes it specific to AD. Through immunofluorescence, increased phosphorylated tau was observed in the hippocampus of the tauKQ mice compared to the nontransgenic mice. I focused on the dentate gyrus, CA1 region, and the mossy fibers of the CA3 region since they are involved in many memory processes. Through chromogenic IHC, the tauKQ mice exhibited more 3R+4R tau isoform pathology in the mossy fibers than the nontransgenic mice. This data suggests that an acetylation mimic is sufficient to stimulate an abundance of AD-related tau pathology in transgenic mice which is consistent with my hypothesis. The tauKQ mouse model can assist in understanding the role of tau acetylation and tau progression for AD.

#### **ADULT DAY SERVICE USE AMONG ETHNIC MINORITY OLDER ADULTS: AN UPDATED INTEGRATIVE REVIEW**

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Adult day services (ADS) are a preferred care option for racial and ethnic minorities compared to other types of long-term care services in the United States. However, there is limited knowledge on minority ADS users. Focusing on minority older adults, this study aims to (a) identify facilitator and barriers of ADS use, and (b) examine ADS’s effect on health and wellbeing. Using Whittemore and Knaff’s methodology of integrative reviews, we searched relevant studies published between 2010 to 2020 in Ageline, PubMed, PsycINFO, CINAHL, Web of Science and Google Scholar and included 8 articles in this review after extensive screening and critical appraisal. Crowe Critical Appraisal Tool (CCAT) was used to assess methodological rigor of the studies included in this review. This review showed that individual factors of ADS use among minority older adult included functional impairment, diabetes, race, gender, and degree of loneliness. Organizational characteristics, such as availability of transportation services, bilingual nurses, peer support, and cultural activities, and structural factors including for-profit status and source of payment were also related to ADS use among minority older adults. Positive outcomes associated with ADS use were improved quality of life and sense of fulfillment. Better understanding of minority older adults’ experience with ADS will help tailor the services to better fit

their cultural preferences and needs. Future research should move beyond individual-level factors to identify and address organizational and structural factors such as institutional structure, organization culture and practice impact on disparities and discrimination in services access and quality.

#### ADVERSE CHILDHOOD EXPERIENCES ASSOCIATED WITH EPIGENETIC AGE AND DEPRESSIVE SYMPTOMS IN OLDER ADULTS

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Adverse childhood experiences (ACEs) increase risk for depression in adolescents and older adults and have been linked to accelerated biological aging. We hypothesized that accelerated epigenetic aging may partially explain the link between ACEs and depression. This study examines second-generation epigenetic clocks (viz., GrimAge, PhenoAge, and DunedinPoAm38) as mediators of the link between ACEs and depressive symptoms in older adulthood. We utilize structural equation modeling to assess mediation in the Innovative Subsample of the Venous Blood Study from the Health and Retirement Study (N = 2672). Results indicate that experiencing more than 1 ACE is significantly associated with greater GrimAge and DunedinPoAm38, with limited evidence of increasing aging with increasing ACEs. GrimAge and DunedinPoAm38 were also significantly associated with more depressive symptoms. These associations were partially reduced by lifestyle factors. GrimAge explained between 9 and 13% of the association between ACEs and adult depressive symptoms, and DunedinPoAm38 explained between 2 and 7% of the association between ACEs and adult depressive symptoms. Findings indicate that accelerated aging, as measured by GrimAge and DunedinPoAm38, is strongly associated with ACEs in older Americans, that these clocks are highly associated with depressive symptoms in older Americans, and that these clocks mediate a proportion of the association between ACEs and adult depressive symptoms. Epigenetic clocks may represent a physiological mechanism underlying the link between early life adversity and adult depression. Lifestyle factors are a potential area for intervention.

#### AGE-RELATED CHANGES IN ONGOING THOUGHT RELATE TO EXTERNAL CONTEXT AND INDIVIDUAL COGNITION

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Understanding how age-related changes in cognition manifest in the real world is an important goal for aging research. One means of capturing these changes involves “experience sampling” participant’s self-reported thoughts as

they go about their daily lives. Previous research using this method has shown age-related changes in ongoing thought: e.g., older adults have fewer thoughts unrelated to the here-and-now. However, it is currently unclear how these changes reflect cognitive aging or lifestyle changes. 78 younger adults and 35 older adults rated their thought contents along 20 dimensions and the difficulty of their current activity in their daily lives. They also performed cognitive tasks in the laboratory. In a set of exploratory analyses using Principal Component Analysis (PCA), we found that older adults spent more time thinking positive, wanted thoughts, particularly in demanding contexts, suggesting they may use different strategies to regulate their emotions. In line with previous research, older adults spent less time mind wandering about their future selves. Past-related thought related to episodic memory differently in older and younger adults. Additionally, PCA analyses performed separately in older and younger adults showed high similarity to an analysis performed on the combined sample, suggesting a similar structure to ongoing daily life thought in older and younger adults. These findings inform the use of experience sampling to understand cognitive aging, highlighting the need to consider content along multiple dimensions as well as the context in which thoughts are reported when analyzing aging ongoing thought.

#### AGE-RELATED CHANGES IN POSTURE STEADINESS IN THE COMPANION DOG

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Aging is associated with changes in the sensory-motor system that could lead to dynamic instability. In fact, postural control deficits have been proposed as an early indicator of frailty. Measurements of the displacement of the center of pressure (COP) using pressure mat data are useful tools to determine postural steadiness. Companion dogs represent a powerful model to study aging in people because they share our environment and experience similar age-related diseases. To date, the effect of aging on postural control in dogs has not yet been evaluated. The aim of this study was to determine the correlation between age and the displacement of the COP in dogs during quiet standing. Due to the diversity of life expectancy in dogs according to their body size, age was normalized as a fraction of the predicted life expectancy. Dogs older than 75% of their life expectancy (n=18) were asked to stand on a pressure mat for 8 seconds per trial during at least five trials. Only the frames where the dogs were standing still and facing forward were analyzed. Age as a fraction of life expectancy was significantly correlated (p<0.05) with the Medio-lateral Range, Root-Mean-Square Distance, 95% Confidence Ellipse, and Total Sway Area of the COP. These results show that, as in humans, aging in dogs is associated with postural control deficits and therefore reinforce the dog as a suitable model for translational studies of aging and postural steadiness.