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Presented by

UF College of Public Health and Health Professions
Department of Clinical and Health Psychology
UNIVERSITY *of* FLORIDA

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White Matter Hyperintensity and Functional Ability: How Does Amyloid and Tau Mediate This Relationship?

Presenter: Tamare Adrien
Faculty Mentor: Dr. Glenn Smith
Co-chair: Dr. Shellie-Anne Levy
External Member: Dr. David Fedele

Background

White matter hyperintensities (WMH) are white matter lesions in the brain (appearing as 'hyperintense' on FLAIR MRI scans) with established links to various vascular risk factors (e.g., hypertension). Increased WMH has been associated with Alzheimer's disease (AD), which is characterized by a notable impairment in the performance of activities of daily living; amyloid and tau pathologies have also been linked to the development of AD. However, the specific relationship between WMH and functional ability is not widely studied. The aim of this study was to examine whether tau and amyloid pathologies might mediate the relationship between WMH and functional ability at baseline.

Methods

Secondary data analysis of 200 participants (Mage = 72.2) from the Alzheimer's Disease Neuroimaging Initiative dataset. Tau/amyloid was quantified by CSF biomarkers, WMH by total WMH volume, and functional ability by the Functional Activity Questionnaire. A multiple mediation analysis was conducted to assess the direct effect of WMH on functional ability and the indirect effects of that relationship through amyloid and tau, both individually and together.

Results

The total effect of WMH on functional ability was not significant. The direct effects of WMH on amyloid, WMH on tau, as well as the direct effect of amyloid (the first mediator) on tau (the second mediator) were significant. The direct effects of tau and amyloid as individual mediators on functional ability were also significant; when both mediators were included in the model, however, the relationship between WMH and functional ability was no longer significant. Examination of the indirect effects suggests that the single mediation of amyloid and multiple mediation of amyloid and tau were statistically significant. The overall model was significant, explaining 36% of the total variance in functional ability.

Conclusions

It is beneficial to account for amyloid and tau pathologies when examining the relationship between white matter hyperintensity and functional ability.

Source of Funding

N/A

Determinants of Perceived Pain Relief from Alcohol Intake in Laboratory Settings

Presenter: Sharmagh Aghabeigi
Faculty Mentor: Dr. Jeff Boissoneault
Co-chair: Dr. Michael Robinson
External Member: Dr. Liana Hone

Background

Evidence suggests a significant proportion of individuals with pain endorse self-management with alcohol. Pain self-management using alcohol is thought to increase risk of alcohol related consequences, including development of alcohol use disorder, due to its negative-reinforcing effects. Previous studies of alcohol analgesia have typically assumed that alcohol-induced changes in pain threshold and intensity reflect negative reinforcement. The relative contributions of changes in pain threshold and intensity, subjective intoxication, expectancies of relief from alcohol consumption, and relevant demographic and psychosocial factors (e.g., typical drinking) to perceived pain relief from alcohol use have not been determined. The primary aim of this study was to characterize which of these factors are most strongly related to perceived pain relief in individuals with and without chronic pain.

Methods

This analysis combined data from two studies of alcohol analgesia in social non-problem drinkers (N=119) both with (n=21) and without chronic jaw pain (n=98). In each, participants completed two laboratory oral alcohol challenge sessions: active alcohol (BrAC .08 g/dL) and placebo. Thirty minutes after beverage administration, participants completed quantitative sensory testing (QST) in the form of either pressure algometry at the masseter insertion (n=51) or heat applied to the foot (n=68). Prior to beverage consumption and QST administration, participants completed a visual analogue scale (VAS) assessing expectation that consuming alcohol would provide pain relief ranging from 0-100 (0= "no pain relief at all", 100= "complete pain relief"). After alcohol consumption but prior to QST administration, participants completed VAS measures of subjective intoxication (0= "not at all intoxicated", 100= "most intoxicated imaginable"). Following each stimulus, participants rated their perceived relief from pain due to alcohol on a 0-100 VAS. Effects of alcohol on pain relief compared to placebo were determined using dependent t-tests. Pain intensity, pain threshold, and demographic and psychosocial factors with significant bivariate correlations with pain relief ratings were included in hierarchical linear models. Model 1 included demographic and psychosocial factors significantly correlated with pain relief. Model 2 added pain intensity, pain threshold, subjective intoxication ratings, and alcohol expectancy ratings. Model 3 added the interaction term of alcohol expectancy and subjective intoxication. Model 4 included the four quadrants of the Subjective Effects of Alcohol Scale (SEAS).

Results

Results indicated perceived relief ratings were significantly higher in the alcohol (M=39.48, SD=25.65) than placebo (M=17.41, SD=19.77) condition ($t_{118}=8.796$, $p<.0001$, $d=.81$). Age, chronic pain status, typical daily alcohol intake, pain

catastrophizing, sex, depressive symptomatology, and trait anxiety were not significantly associated with pain relief (|r|<.13, p>.15). In Model 1, pain anxiety was significantly associated with pain relief ratings (☐=.27, p=.003). In Model 2, pain anxiety was no longer significant (p=.33), but both subjective intoxication (☐=.55, p<.0001) and alcohol expectancy (☐=.24, p=.003) ratings were significantly and positively associated with perceived relief. The subjective intoxication X alcohol expectancy interaction included in Model 3 was non-significant (p=.12). Model 2 accounted for 41% of the variation in perceived pain relief. In Model 4, subjective intoxication (p<.001), alcohol expectancy (p<.01), and high arousal positive subjective response (p=0.01) were all significantly associated with perceived pain relief.

Conclusions

Consistent with prior work, we found that individuals expressed significantly higher relief ratings after oral alcohol administration relative to the placebo beverage administration. In addition, both alcohol expectancy and pre-QST subjective intoxication were significantly and independently associated with perceived pain relief in the alcohol session. However, contrary to typical assumptions, pain threshold and intensity were not associated with relief ratings, but subjective intoxication, expectancies, and high positive affect were all significantly associated with relief ratings. These results provide provocative evidence that the negative reinforcing effects of alcohol use in the context of pain are not adequately captured by psychophysical tests of pain threshold and intensity and highlight the importance of both alcohol-related expectancies and subjective response to individuals' evaluation of alcohol's efficacy for pain self-management.

Source of Funding

Support for this research was provided by the National Institute on Alcohol Abuse and Alcoholism (R01AA025337, R21AA026805; JB, PI)

Feasibility of Routinely Measuring Psychosocial Outcomes for Primary Brain Tumor Patients in a Neuro-Oncology Clinical Setting

Presenter: Anjelica Body
Faculty Mentor: Dr. Deidre Pereira
Internal Member: Dr. Michael Robinson
External Member: Dr. Ashley Ghiaseddin

Background

Background: A primary brain tumor (PBT) is a distressing diagnosis that influences the psychosocial well-being of patients. There is limited research on assessing psychosocial outcomes for PBT patients; furthermore, it is unclear the degree to which it is feasible and acceptable to implement assessment in a routine clinical setting. This study evaluated the feasibility of assessing psychosocial outcomes longitudinally for PBT patients at the UF Health Neuro-Oncology clinic.

Methods

Methods: 100 PBT participants were enrolled to assess psychosocial outcomes during routine clinical appointments. 76 patients completed one follow-up, 50 completed two, and 16 completed three follow-up batteries. Patients completed a follow-up battery approximately every three months after initial enrollment, which included a Participant Experience Form (PEF) to assess patients' feedback on a 1 (least acceptable) to 7 (most acceptable) point scale. Feasibility for the follow-up battery was operationalized by evaluating: Acceptability (80% of participants will have an average PEF score ≥ 4); Practicality (average time of completion will be < 10 minutes); and Implementation (80% of participants will complete the entire battery). Mixed linear modeling was used to examine sociodemographic and disease-related predictors of PEF scores over time.

Results

Results: The follow-up battery met Feasibility criteria for Acceptability and Implementation; however, it did not meet Practicality criteria. PEF scores significantly declined after each follow-up battery completion. Experiencing disease progression across the course of the study, older age, and having lower income were significantly associated with lower PEF scores ($p<0.05$).

Conclusions

Conclusions: Individuals living with PBTs have unique biopsychosocial issues that may influence their experience of completing routine psychosocial assessments across time. Future adaptations of the follow-up battery should facilitate shorter questionnaires to minimize study fatigue and further improve acceptability scores. Disease-related events must also be considered when assessing PBT patients' psychosocial outcomes.

Source of Funding

N/A

MobileCoach-Teen: A Novel Digital Intervention for Risky Adolescent Drinking

Presenter: Alex Clement
Faculty Mentor: Dr. Joy Gabrielli
Internal Member: Dr. David Fedele
External Member: Dr. Kathryn Ross

Background
Background: Older adolescence is a critical period for experimentation with substance use, especially alcohol. Adolescent drinking provokes risks to physical and mental health, makes driving and other activities riskier, and is associated with adverse social outcomes in adolescence and adulthood. Existing preventative interventions are largely ineffective and expensive. Given the integration of technology in the lives of contemporary adolescents, digital interventions should be explored.

Methods
Methods: 29 adolescents aged 16-18 (M=17.2, SD=.74) were recruited via physical and digital flyers for a pilot feasibility trial of the MobileCoach-Teen smartphone app-based intervention. Participants were randomized to receive either the alcohol intervention or attention control pseudo-intervention. Intervention participants received 12 weeks of content adapted from a prior Swiss-based trial of a preventative alcohol intervention derived from the health action process approach model. Participants provided qualitative and quantitative feedback at baseline, via six biweekly surveys during the intervention, and post-intervention.

Results
Results: The application was rated as easy to download (M=4.31, SD=.93; 5-point Likert). Baseline survey was completed quickly (M=7.7 minutes, SD=2.15) and easily (M=4.69, SD=.60; 5-point Likert). Rate of receiving messages was reported at 96% and receiving notifications was reported at 93%. Application UX, message UX, and digital working alliance with application were all rated favorably. Qualitative themes emerged regarding desire for increased rate/amount and diversity of content, greater representation via coach options, and UI/UX improvements.

Conclusions
Conclusions: The MobileCoach-Teen intervention is feasible and acceptable based on a pilot feasibility trial with a sample of US adolescents. Future iterations can be improved based on participant feedback.

Source of Funding
Startup funds, Dartmouth College Center for Technology and Behavioral Health Pilot Study Grant

Longitudinal Associations of Binge Eating with Internalized Weight Stigma and Eating Self-Efficacy

Presenter: Laurie Groshon
Faculty Mentor: Dr. Rebecca Pearl
Co-chair: Dr. Kathryn Ross
External Member: Dr. David Janicke

Background
Internalized weight stigma (IWS) is known to be associated with poorer eating self-efficacy, but little is known about associations between binge eating disorder (BED) symptoms, IWS, and self-efficacy, especially over time. The present secondary analysis examined associations of BED with IWS and eating self-efficacy among adults with obesity. The role of disinhibited eating in these relationships was also explored.

Methods
Seventy-two adults with obesity and elevated IWS received group behavioral weight loss (BWL) treatment, with half randomized to an additional IWS intervention. Participants were interviewed at screening to determine diagnostic criteria for full and subthreshold BED and completed validated measures of binge eating, IWS (including weight bias internalization, self-devaluation, and stereotype endorsement), eating self-efficacy, and disinhibited eating at baseline and week-26. Cross-sectional mediation models tested associations of BED with IWS and eating self-efficacy, explained by disinhibited eating. Linear and logistic regression models controlling for treatment condition tested if baseline BED predicted changes in IWS, self-efficacy, and disinhibited eating, and if decreases in binge episodes were associated with improvements in these outcomes.

Results
At baseline, disinhibited eating mediated the relationship between BED and weight self-devaluation (95% CI=0.66,3.58), stereotypes (95% CI=0.15,0.56), and eating self-efficacy (95% CI:-14.40,-4.29). Controlling for condition, baseline BED did not predict changes in any outcome. Participants with decreased binge episodes reported greater improvements in weight bias internalization (B=-0.57, 95% CI=-1.14,-0.01, p=0.04) and eating self-efficacy (B=16.40, 95% CI=7.72,25.09, p<0.001).

Conclusions
This study provides novel evidence of longitudinal associations between binge eating, IWS, and eating self-efficacy. IWS warrants further consideration as a treatment target and outcome in studies of BWL and BED.

Source of Funding
This study was funded by WW (formally Weight Watchers) and was also supported by Dr. Pearl's K-award (K23HL140176).

Medical Appointment Adherence and Psychosocial Outcomes in High-Risk Youth with T1D

Presenter: Lexi Himelhoch
Faculty Mentor: Dr. Kimberly Driscoll
Internal Member: Dr. David Fedele
External Member: Dr. Desmond Schatz

Background

Psychosocial outcomes among youth with type 1 diabetes (T1D) who miss quarterly endocrinology appointments are lesser known. This study: 1) describes appointment adherence (visit attendance, no-shows, cancellations) among youth with suboptimal A1c (9-12%) one year prior to enrolling in an RCT and one year post-study completion; and 2) examines appointment adherence as predictors of diabetes distress and responsibility.

Methods

Youth (N=108; Mage=14.72±1.9; 65.7% non-Hispanic white) completed the Problem Areas in Diabetes-Teen and Diabetes Family Responsibility Questionnaire (higher scores=greater distress. caregiver responsibility). Appointment adherence and A1c were gathered from medical charts. Sociodemographic factors included the CDC's Social Vulnerability Index (SVI). Descriptive statistics and paired t-tests analyzed pre- and post-study appointment adherence. Hierarchical linear regression examined pre-study appointment adherence as predictors of diabetes distress and responsibility.

Results

In the year pre-study, 31.5% of youth (n=34) did not meet the quarterly visit recommendation; 9.2% (n=10) had >1 no-show and 69.3% (n=75) had >1 cancellation. In the year post-study, 51% of youth (n=58) did not meet the quarterly visit recommendation; 13.7% (n=14) had >1 no-show and 67.7% (n=69) had >1 cancellation. Pre-study visits (M=3.93) were greater than post-study visits (M=3.37; $p < .001$). Female sex (b=-22.53, $p<0.001$) and higher A1c (b=6.30, $p<0.001$) were predictors of diabetes distress ($R2=0.26$; $p<0.001$). Older age (b=-.84, $p<0.001$), female sex (b=2.17, p=0.017), lower SVI (b=6.02, p=.002), and greater no-shows (b=-3.08, p=0.027) were associated with more youth responsibility ($R2=.27$; $p<0.001$).

Conclusions

Many youth do not achieve the recommended frequency of medical appointments, which was underscored by declining visit attendance pre- to post-study. Additional support is warranted to encourage visit attendance, particularly when interventions end. While diabetes distress was not impacted by appointment adherence, greater youth T1D responsibility may identify those at-risk of no-showing. Further investigation of how responsibility interacts with sociodemographic factors is needed to aid development of clinic-based modifications that promote appointment attendance.

Source of Funding

DP3DK104059

Chronic Musculoskeletal Pain, Plasma Biomarkers, Biobehavioral and Psychosocial Resilience Index, and Brain Age Gap

Presenter: Udell Holmes
Faculty Mentor: Dr. Jared Tanner
Internal Member: Dr. Catherine Price
External Member: Dr. Kimberly Sibille

Background
Chronic musculoskeletal (MSK) pain associates with biobehavioral/psychosocial resilience, brain structure, biological burden, cellular aging, and lower global cognitive function. Less is known regarding the relationships between these factors. The aims of this study are to investigate relationships between 1) clinical pain, disability, resilience, and brain age; and 2) clinical pain, biomarkers of neuronal damage, and resilience.

Methods
Hierarchical regression model analysis was performed with data from an observational multisite study (NAim 1 = 135; age = 58.14±8.00;48.90% non-Hispanic Black; NAim 2 = 76) including adults with chronic pain and knee pain. Measures included the Graded Chronic Pain Scale (GCPS), characteristic pain intensity (CPI) and disability, total pain body sites, a resilience index, and a cognitive screening (MoCA). The resilience index consisted of validated biobehavioral and psychosocial measures.

Results
GCPS CPI (R2 change = .028, p = .036) and GCPS disability (R2 change = 0.023, p = 0.057) significantly predicted BAG beyond the covariates, but total pain sites (p = 0.900) did not. The resilience index significantly predicted BAG in the GCPS CPI and pain sites models ($p < .05$). With resilience added, GCPS CPI (p = .070) and GCPS disability (p = .067) were not significant. In Block 2, GCPS CPI (R2 change = 0.053, p = 0. 0351) significantly predicted "risk" plasma markers beyond the effects of the covariates. In Block 3, resilience ($p > .05$) and GCPS CPI (p = .0534) were not significant.

Conclusions
In this sample, higher reported chronic pain correlated with older appearing brains, and higher resilience attenuated this relationship. The resilience index was associated with younger appearing brains. Our findings are encouraging that interventions targeting both chronic pain and biobehavioral/psychosocial factors might buffer brain aging. Future directions include assessing if chronic pain and resilience factors can predict brain aging over time.

Source of Funding
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The Preliminary Investigation of Digital Clock Drawing and Perioperative Variables on Older Adults with Fibromyalgia versus Non-Fibromyalgia Peers

Presenter: Yonah Joffe
Faculty Mentor: Dr. Catherine Price
Co-chair: Dr. Michael Robinson
External Member: Dr. Franchesca Arias

Background

Fibromyalgia is often accompanied by cognitive dysfunction. Older adults with cognitive limitations have greater risk for postoperative complications, so it is important to consider preoperative cognition in fibromyalgia. This study compared older adults with and without fibromyalgia on a preoperative cognitive screener and postoperative hospital variables.

Methods

Through an honest data broker via federally funded investigation, data from participants aged 65+ were extracted from January 2018 to December 2019 (N=14,807). Participants with fibromyalgia diagnostic codes were propensity matched to non-fibromyalgia peers for age, ethnicity, race, sex, and years of education. All participants completed the digital clock drawing test (command and copy). Variables for dCT included: total completion time (TCT), pre-first hand latency, clock face area, and digit misplacement average. Hospital variables included: total cost (dollars), length of stay (days), and anesthesia type.

Results

Those with fibromyalgia had higher comorbidity scores on American Society of Anesthesiologists Classification (ASA) ($p= 0.003$). There was a significant group difference in TCT for command [$F(1,637)= 5.13$, $p= 0.024$, $d=0.178$] and copy conditions [$F(1,466)= 4.03$, $p= 0.045$, $d=0.179$]. Controlling for ASA, groups still differed in the command TCT condition [$F(1,630)= 4.21$, $p= 0.041$, $\eta 2= 0.007$]. All other variables were statistically non-significant but may be important to note for future research and considerations.

Conclusions

Individuals with fibromyalgia were significantly slower on TCT. TCT to command taps into multiple cognitive domains and our results are consistent with previous work demonstrating poorer cognitive performance in those with fibromyalgia. Future research should examine how brain wellness in fibromyalgia may relate to post-surgical outcome and complications because these findings have public health relevance due to the growing rate of older adults electing surgery.

Source of Funding

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Subjective Cognitive Complaints in Individuals with Parkinson's Disease or Essential Tremor

Presenter: Katie Rodriguez
Faculty Mentor: Dr. Dawn Bowers
Internal Member: Dr. Shellie-Anne Levy
External Member: Dr. Bhavana Patel
Additional Member: Dr. Russell Bauer

Background

The Cognitive Change Index (CCI-20) is a validated questionnaire used to assess the type and severity of subjective cognitive complaints in older adults. The present study had two aims: a) to examine the psychometric properties of the CCI-20 in a movement disorder sample and b) to learn how the CCI-20 corresponds to objective neuropsychological and mood measures in individuals with Parkinson's disease (PD) and Essential Tremor (ET), who typically exhibit varying degrees of cognitive decline during their disease trajectory.

Methods

A convenience sample of 216 non-demented individuals with PD (N=149) or ET (N=67) from the UF Fixel Institute received the CCI-20 and underwent comprehensive neurocognitive and mood evaluation. Confirmatory (CFA) and exploratory factor analyses (EFA) were conducted on the CCI-20. The obtained factor scores and total CCI-20 score were used as outcome variables in separate hierarchical regressions. Block 1 predictors included composite scores for memory, executive functioning, and language domains; block 2 included mood predictors (Beck Depression Inventory (BDI-II), State-Trait Anxiety Inventory (STAI-Trait), Apathy Scale (AS)).

Results

Participants were well-educated (m=15.01±2.92), in their mid-60's (m=67.72±9.33), predominantly male (63%), and non-Hispanic White (93.6%). EFA revealed 3 factors of cognitive complaints: explicit memory, non-memory, and mixed memory. CFA revealed a significant model ($\chi 2$ [167; N = 216]=344.6; $p< 0.001$) and acceptable indices of model fit (CFI=0.927, TLI=0.908, RMSEA=0.070). Regression analyses indicated that mood symptoms (BDI, STAI-trait, AS) predicted total cognitive complaints while poor executive functioning (β=-.170, p=.019) predicted non-memory complaints.

Conclusions

Findings revealed three distinct dimensions of subjective cognitive complaints on the CCI-20. Non-memory complaints were indicative of worse executive functioning, consistent with the cognitive profile in PD and ET. Importantly, mood symptoms played a significant role in driving total cognitive complaints. Future studies should explore the utility of subjective cognitive complaints in predicting cognitive decline in these populations.

Source of Funding

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An Update: Apathy, SSRIs, and Parkinson's Disease

Presenter: Rachel Schade
Faculty Mentor: Dr. Dawn Bowers

Background

Apathy is a lack of motivation that is common in Parkinson's disease (PD) and often misdiagnosed as depression. Previous research showed that use of selective serotonin reuptake inhibitors (SSRIs) is associated with increased apathy in individuals with PD and depression. In PD, this appears to be related to downregulation of dopaminergic systems by serotonin. SSRIs are still heavily prescribed in PD, potentially worsening apathy. This study is an update, re-examining the relationship between apathy and SSRIs in a large cohort of individuals with PD.

Methods

Participants included a clinical sample of 400 nondemented individuals with PD. On average, the sample was in their mid-60's (65.04+8.68 years), well-educated (14.93+2.80 years), male (71.75%), non-Hispanic white (91.3%), and mid-stage of disease severity (Unified Parkinson Disease Rating Scale motor score=25.22+10.15). Individuals were excluded if Dementia Rating Scale-2 (DRS-2) score <125. Medications, mood, and clinical data were collected. Depression and apathy were measured using the Beck Depression Inventory-II (BDI-Il) and the Apathy Scale (AS). Antidepressant medications were grouped into SSRIs, SNRIs, and other. Analyses included a hierarchical regression.

Results

In the sample, 43.0% (N=172) were on antidepressants. Of these 172, 60.47% were on SSRIs. 37.75% of the 400 PD patients exceeded recommended clinical cutoffs for apathy (AS>14) and 28.25% for depression (BDI-II>14). A hierarchical regression contained the following blocks: 1) age, education, sex, 2) disease duration, 3) DRS-2 and BDI-II, 4) psychotropic medications and PD medications. This model explained 38.8% of the variance in total apathy scores ($p<0.001$). SSRIs were the only antidepressant medication to significantly predict greater AS scores ($\beta=0.101$, $p=0.018$) in this model.

Conclusions

These findings suggest that use of SSRIs, but not other antidepressants, is associated with greater apathy in PD. Given the interactive relationship between serotonin and dopamine, the current findings highlight the importance of considering apathy when prescribing anti-depressants to individuals with PD.

Source of Funding

T32-NS082168

Does the Early Bird Really Catch the Worm? Associations Between Chronotype and Weight Loss During a Weight Loss Intervention

Presenter: Taylor Swanson
Faculty Mentor: Dr. Kathryn Ross
Internal Member: Dr. Rebecca Pearl
External Member: Dr. Eric Porges

Background

Later chronotype, or biological sleep/wake time preference, has been associated with greater caloric intake, lower levels of physical activity (PA), and higher body mass index (BMI). Less is known regarding whether chronotype may predict changes in weight-related behaviors and weight loss during a behavioral weight management program.

Methods

We investigated these associations in 235 non-shift working adults with obesity (M±SD age=50.43±10.65 years; BMI=35.78±4.18 kg/m2; 84.3% female, 77.9% White) enrolled in a 4-month behavioral weight management program. We hypothesized that, after adjusting for age and sex, later chronotype (measured via the Munich Chronotype Questionnaire [MCTQ] at baseline) would predict less weight loss (assessed via BodyTrace e-scales), and that this association would be mediated by adherence to caloric intake and physical activity (PA) goals (assessed via participant self-monitoring logs). We further explored if other sleep variables assessed via the MCTQ (i.e., average weekly sleep duration and loss, or social jetlag) were associated with weight loss.

Results

Participants lost an average of 6.89±4.58% of their baseline weight during the intervention. Greater caloric intake and PA goal adherence were significantly associated with greater weight loss (ps<.001). Later chronotype significantly predicted lower caloric intake goal adherence, p=.037; however, there were not significant associations between chronotype and PA goal adherence, p=.205, or weight loss, p=.297. Further, adherence to caloric intake and PA goals did not significantly mediate the effect of chronotype on weight loss (95% CIs contained zero). Finally, weight change was not predicted by any other MCTQ sleep variables, all ps>.05.

Conclusions

Although chronotype predicted caloric intake goal adherence, having a later chronotype did not influence weight loss during a weight loss intervention. Thus, behavioral weight loss interventions may be similarly beneficial for individuals regardless of chronotype. Future studies should replicate these results using objective measures of sleep (e.g., actigraphy).

Source of Funding

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) of the National Institutes of Health (NIH) award number R01DK119244

Connecting memory and functional brain networks in older adults: a resting state fMRI study

Presenter: Jori Waner
Faculty Mentor: Dr. Adam Woods
Internal Member: Dr. Ronald Cohen
External Member: Dr. Joy Gabrielli

Background

Nonpathological aging and resting-state network functional connectivity disruptions are associated with verbal and visuospatial memory decline. However, there is a paucity of research directly assessing the relationship between resting-state functional connectivity and verbal and visuospatial memory in advanced age. The present study examined the role of within-network higher-order functional connectivity of cingulo-opercular (CON), frontoparietal control (FPCN), and default mode (DMN) networks on verbal and visuospatial memory in older adults. Across memory domains, we hypothesized that greater CON and FPCN connectivity would coincide with better immediate recall and learning ratios, and greater DMN connectivity would be associated with higher delayed recall.

Methods

330 healthy older adults between 65 and 89 years old underwent resting-state fMRI and completed the Hopkins Verbal Learning Test - Revised (HVLT-R) and Brief Visuospatial Memory Test - Revised (BVMT-R). Immediate and delayed recall and learning ratios were assessed. Average within-network CON, FPCN, and DMN connectivity values were obtained with CONN Toolbox. Hierarchical regressions were conducted, controlling for sex, race, ethnicity, years of education, number of invalid scans, and scanner site.

Results

Greater CON connectivity was associated with better HVLT-R immediate recall (beta = 0.16, p = 0.01) and learning ratio (beta = 0.16, p = 0.01), and BVMT-R immediate (beta= 0.14, p = 0.02) and delayed recall (beta= 0.15, p = 0.01). Greater FPCN connectivity was associated with better BVMT-R learning ratio (beta= 0.13, p = 0.04). HVLT-R delayed recall was not associated with connectivity, and DMN connectivity was unrelated to memory measures.

Conclusions

CON connectivity was robustly related to different components of verbal and visuospatial memory functioning. FPCN only evidenced a relationship with visuospatial learning, and DMN was not associated with memory measures. These data suggest that CON may be a target in longitudinal age-related memory studies and in future non-invasive interventions to attenuate later-life memory decline.

Source of Funding

Augmenting Cognitive Training in Older Adults (The ACT Study) (R01AG050477)