

# INTERNET-BASED COGNITIVE-BEHAVIORAL THERAPY FOR DEPRESSION: A FEASIBILITY STUDY FOR HOMECARE OLDER ADULTS

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This pilot study examined the feasibility of delivering internet-based cognitive behavioral therapy (iCBT) to homebound older adults with symptoms of depression who are recipients of non-medical home care. A feasibility open trial was conducted in the homes of homecare older adults (n=26). When possible, home care workers (HCWs) of older adults (n=13) were recruited to provide external support for iCBT usage. In cases where consistent assistance from the same HCW was not feasible, participants were given the choice of working on the program on their own (n=7) or receiving assistance from a research assistant (RA) (n=6). The mean therapy sessions completed was 4.7 out of 8 total sessions. The mean satisfaction rating was 7.7 (SD=2.9) and 86% would recommend the program to others with depressed mood. Significant reductions in depressive symptoms and anxiety symptoms and improvement on a quality of life measure were observed at post-test. The RA-supported group tended to have the best adherence, satisfaction, and reduction in depressive symptoms, followed closely by the HCW-supported group. The self-guided group had the lowest adherence, satisfaction, and symptom reduction. iCBT is a feasible and acceptable treatment modality for homebound older adults with depressive symptoms and potentially effective. Data from the participant exit interviews suggest a need for refining the existing treatment platform to better meet the needs and capabilities of homebound older adults. Future studies are warranted to examine treatment effectiveness as a function of HCW support.

# MEDIATING ROLE OF TRAIT MINDFULNESS ON THE RELATIONSHIPS BETWEEN AGE AND BOTH DEPRESSIVE AND ANXIETY SYMPTOMOLOGY

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Previous research has shown that despite experiencing more negative life events, older adults maintain relatively high levels of well-being compared to their younger counterparts. This effect appears to be at least partially mediated by trait mindfulness in older adults (Raes et al., 2013). The current study expanded into an investigation as to how trait mindfulness might intervene on the relationship between age and other well-being indicators: anxiety and depressive symptomology. Participants included 30 older adults (aged 60-83) and 41 young adults (aged 18-35). Trait mindfulness was examined using the Mindful Attention Awareness Scale (MAAS), while depressive symptoms and trait anxiety were measured using the Center for Epidemiological Studies Depression Scale (CES-D) and the State-Trait Anxiety Inventory (STAI), respectively. Two separate mediated multiple regression models were conducted using Hayes' PROCESS Macro in SPSS. Trait mindfulness exhibited a significant indirect effect on the relationship between age and depressive symptoms ( $\beta = -2.27$ ,  $p < .005$ ), which was also seen for the relationship between age and trait anxiety

( $\beta = -4.17$ ,  $p < .001$ ). Older age predicted higher trait mindfulness, which in turn predicted diminished self-reported anxiety and depressive symptomology. Controlling for mindfulness in these models reduced the direct effect of age on depression and anxiety to non-significance. These findings imply that the relationship between age and trait mindfulness can be extended to alternative markers of well-being.

# REGIONAL BRAIN VOLUMES ASSOCIATED WITH DEPRESSION IN THE NATIONAL ALZHEIMER'S COORDINATING CENTER UNIFORM DATA SET

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Depression has been associated with greater risk of Alzheimer's disease (AD), and existing research has identified structural differences in brain regions in depressed subjects compared to healthy samples, but results have been heterogeneous. We sought to determine the effect of depression on regional brain volumes by cognitive and APOE e4 status. Secondary analysis of the National Alzheimer's Coordinating Center (NACC) Uniform Data Set was conducted using complete MRI data from 1,371 participants (mean age: 70.5; SD: 11.7). Multiple linear regression was used to estimate the adjusted effect of depression (via the Neuropsychiatric Inventory Questionnaire) on regional brain volumes through measurement of 30 structural MRIs. Depression in the prior two years was associated with lower total brain, cerebrum, and gray matter volumes and greater total brain white matter hyperintensities ( $p < .05$ ). Greater volumes were also observed in all ventricular volume measures. Lower mean volumes were observed in six additional frontal lobe and parietal lobe cortical regions. Alternately, depression antecedent to the past 2 years correlated only with occipital lobe gray matter volumes (right, left, total). Our findings suggest that depression in the prior two years is associated with atrophy across multiple brain regions and related ventricular enlargement, even after controlling for intracranial volume and demographic covariates. The duration of depression influences results, however, as depression prior to 2 years before assessment was correlated with significantly fewer and different regional brain volume changes.

# THE EFFECT OF ANXIETY ON REGIONAL BRAIN VOLUMES IN THE NATIONAL ALZHEIMER'S COORDINATING CENTER UNIFORM DATA SET

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Anxiety has been associated with greater risk of Alzheimer's disease (AD) and existing research has identified structural differences in regional brain tissue in anxious compared to healthy samples, but results have been variable and somewhat inconsistent. We sought to determine the effect of anxiety on regional brain volumes by cognitive

and apolipoprotein e (APOE) e4 status using data from a large, national dataset. A secondary analysis of the National Alzheimer's Coordinating Center Uniform (NACC) Data Set was conducted using complete MRI data from 1,371 participants (mean age: 70.5; SD: 11.7). Multiple linear regression was used to estimate the adjusted effect of anxiety (via the Neuropsychiatric Inventory Questionnaire) on regional brain volumes through measurement of 30 structural MRI biomarkers. Anxiety was associated with lower total brain and total cortical gray matter volumes and increased lateral ventricular volume ( $p < .05$ ). Lower mean volumes were also observed in all hippocampal, frontal lobe, parietal lobe, temporal lobe, and right occipital lobe volumes among participants who reported anxiety. Conversely, greater ventricular volumes were also correlated with anxiety. Findings suggest that anxiety is associated with significant atrophy in multiple brain regions and ventricular enlargement, even after controlling for intracranial volume and demographic covariates. Anxiety-related changes to brain morphology may contribute to greater AD risk.

#### THE PENN STATE WORRY QUESTIONNAIRE IS INVARIANT ACROSS AGE GROUPS

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Prevalence of GAD is between 3 to 5% with onset in the early to mid-twenties (Kessler et al. 2009). The Penn State Worry Questionnaire (PSWQ) is a 16-item self-report instrument assessing generalized anxiety symptoms (Meyers, et al., 1990; Molina & Borkovec, 1994). Brown (2003) and Olatunji et al. (2007) conducted Confirmatory Factor Analyses identifying a two factor model of Worry Engagement and Absence of Worry. No published studies have examined the factor structure of the PSWQ across age groups. The current study presents data from 612 people across three groups: 221 young adults (Mage = 19.31, SD = 1.21), 283 middle-age adults (Mage = 48.27, SD = 5.13), and 108 older adults (Mage = 72.95, SD = 7.19). An ordinal confirmatory factor analysis (CFA) using robust weighted least squares (WLSMV) tested for invariance across groups. Results showed CFI/TLI values of .983/.981, .984/.983, and .981/.984 for Configural (CI), Metric (MI), and Scalar (SI) models. The RMSEA for CI, MI, and SI models was .064, .061, and .059. Based upon Cheung and Rensvold (2002), Sass (2011), and Chen (2007), a cutoff of  $\Delta CFI \geq 0.01$  was established as evidence of invariance. The  $\Delta CFI$  between CI and MI models was  $< .01$  so analysis continued with the SI test. The  $\Delta CFI$  between MI and SI models was  $< 0.01$  and did not justify rejection of the null hypothesis. These analyses suggest PSWQ scores are valid across age groups and provide additional support for the multidimensional nature of the PSWQ.

#### THE WHO AND WHEN OF WORRY: THE FADING IMPACT OF GENDER ON WORRY AND ANXIETY SEVERITY AMONG OLDER ADULTS

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**Introduction.** This study examined the influence of age and gender on diverse worry constructs and overall anxiety among younger (age 18-30) and older (age 65+) adults. **Methods.** 411 participants (311 younger, 100 older adults; 77.1% female) completed the PSWQ, BMWS, WDQ, and GAS online. **Results.** Among a series of 2x2 between-subjects ANOVAs, significant interaction effects between age and gender were found among all worry and anxiety measures. Specifically, there was a significant interaction effect on worry severity as measured by the PSWQ ( $F[1, 393]=4.28$ ,  $p < .05$ ), the WDQ ( $F[1, 397]=8.42$ ,  $p < .01$ ) and the BMWS ( $F[1, 396]=10.41$ ,  $p < .01$ ). Gender had a larger impact on worry among younger adults than older, though both age groups showed similar patterns of women reporting greater worry than men. Though both younger and older adults showed a gender difference in worry severity, this difference was mitigated by late life. There was also an interaction effect on anxiety (GAS total) in that younger women reported greater anxiety than younger men but older adults reported similar anxiety across genders,  $F(1, 384)=9.78$ ,  $p < .01$ . Simple main effects analysis showed that younger women scored higher than older women on all measures of worry and anxiety, whereas younger men scored higher than older men on the PSWQ and WDQ but not the BMWS or GAS. **Discussion.** Consistent with previous literature, women reported greater worry and anxiety than men. However, this difference was mitigated and even extinguished among some measures in older adults. Possible explanations are discussed.

#### SESSION 2948 (POSTER)

##### HEALTH PROMOTION AND WELL-BEING I

##### AN EXAMINATION OF THE MEIKIRCH MODEL'S MULTIDIMENSIONAL DEFINITION OF HEALTH AND AGING

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The present study used the CDC's 2017 Behavioral Risk Factor Surveillance System and Structural Equation Modeling (SEM) to test the Meikirch model's theoretical definition of health and aging. This biopsychosocial and ecological framework considers the dynamic interplay between an individual's biology, health behavior and health potential, social surroundings, physical environment, and demands of living on both mental and physical health outcomes. A total sample of 96,568 adults were included with a mean age of 66.05 years (SD = 9.91). Individuals were classified in the following age groups: 43% middle-aged (45-64 years), 33% young-old (65-74 years), and 25% old-old adults (75+ years). The sample was largely female (61%), Non-Hispanic White (86%), and urban (67%). A CFA and WLSMV estimation was used to assess each latent construct. The overall SEM model was found to be a good fit (RMSEA=0.05, CFI=0.94, TLI=0.90), explained a significant portion of the variance in the health outcome (65%), and appeared to mimic prior