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Past research shows that major depression is associated with lower white matter integrity in fronto-limbic and other areas. But it is not known whether the integrity of these white matter connections is associated with subsyndromal depression symptoms, a marker of risk for major depression, in family dementia caregivers (dCGs) who reported stress. If specific aspects of white matter integrity are related to depression symptoms in this high-risk group, this could provide a biomarker of vulnerability or target for treatment. Participants included 41 dCGs (average age=69, standard deviation=6.4), who underwent a 7 Tesla 64-direction (12-minute) diffusion-weighted imaging sequence. Analyses compared dCGs with (n=20) and without (n=21) subsyndromal depression symptoms (nine-item Patient Health Questionnaire scores ≥5). Using fractional anisotropy (FA), we assessed differences in the integrity of 11 white matter aspects implicated in prior studies of major depression. We found that caregivers with subsyndromal depression had lower FA in tracts connecting to the posterior cingulate cortex (Cohen's D=-0.9, p-value=0.006, FDR=0.03) and in white matter connecting the dorsolateral prefrontal cortex with the rostral cingulate (Cohen's D=-1.2, p-value=0.0005, FDR=0.006). Thus, differences in the integrity of white matter (and related functions) reaching the posterior cingulate (autobiographical memory/planning) and connecting dorsolateral prefrontal and rostral cingulate regions (emotion re-appraisal) may contribute to depression vulnerability in dCGs. These observations require contextualizing further (e.g., assessing roles of depression history and other risk factors) for their meaning to be fully elucidated. Potentially, relationships between known risk factors (e.g., subjective stress) and depression emerge from or drive changes in white matter.

CARDIAC MYBP-C IN C57BL/6 MICE: THE EFFECTS OF AGE

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Aging is a known contributor to cardiovascular dysfunction. It is well-established that with age there are functional changes in the heart; yet, the proteins responsible for maintaining sarcomere integrity are not well understood during the aging process. A key protein, cardiac myosin binding protein C (cMyBP-C), contributes to the structural integrity and the regulation of actomyosin interactions. To date, little is known about the effects of aging on cMyBP-C. Therefore, the first step in evaluating this sarcomere protein was to determine the expression of cMyBP-C in cardiac tissue across the lifespan. Using ten C57BL/6 male mice per age group (adult (6-7 months), old (22-25 months), and very old (≥29 months)), body and heart mass were determined. Next a portion of the cardiac tissue was homogenized, and protein concentration was determined (BCA assay). The protein samples were probed for cMyBP-C with MYBPC3 (Abcam, #ab133499) by Western Blot. One-way ANOVA was performed to evaluate differences between groups. Results indicated there was an increase in heart mass with age, but relative to body weight there was no significant difference between the three age groups. Western blot analysis revealed no significant age-related difference in the expression of cMyBP-C. Although there was no change in expression levels, it is not possible to rule out cMyBP-C as a contributor to age-related cardiac dysfunction because phosphorylation is known to play a critical role in the function of cMyBP-C. Thus, further investigation of the phosphorylation status of cMyBP-C is needed and is ongoing.

EXAMINING COMMUNITY-BASED SERVICES DISCONNECTS IN LATE OLD AGE: PATHS FOR REACH THROUGH THE COMMUNICATION ECOLOGY

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As potentially eligible recipients continue to increase in number, understanding service system utilization and barriers can help ensure very old adults can access support from their communities when needed. A communication disjuncture between seniors and community-based service providers was revealed through a multi-year, county-wide older adult needs assessment utilizing data from 1,870 individuals. In response, officials convened a post assessment team that formed the three-person Community Advisory Group (CAG, all ≥69 years) who participated in this community-based participatory research (CBPR) study. This applied, qualitative study, guided by an ecological health communication research framework, conducted multilevel examinations of interactions among older adults and their social environment. Twenty in-depth, face-to-face, semi-structured interviews (mean = 82.5 years) were conducted based on a critical threshold of understanding achieved via researcher immersion in the community preceding this study, data collected, and CAG insight revealed through collaborative analysis. Communication Infrastructure Theory helped to reveal how participants' diminishing social network interrelated with the communication environment acted to impede connections to services. In addition to utilization impediments, enabling elements of the communication infrastructure were identified so those resources might be leveraged to bridge the senior-provider divide. Findings from this study suggest new outreach approaches for connecting to older adults through their communication ecology. The findings add to the growing convergence of evidence that calls for improved communication with older adults to minimize poor interactions that hinder accessing resources that may enhance their social, emotional, and physical well-being.

UNDERSTANDING DEMENTIA PREVALENCE AND HEALTH CARE USE PATTERNS IN RURAL NORTH CAROLINA

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Rural and remote communities have limited access to high quality dementia care, prompting a need for innovative