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Osteoporosis screening by bone density (BMD) testing is recommended for women aged 65-75 years. However, patients with diabetes, a risk factor for fracture, often have higher body mass index (BMI) which contributes to higher BMD. These factors may vary by race/ethnicity. The relationship of diabetes (≥ 2 diagnoses and treatment), obesity (BMI ≥ 30), and BMD-defined osteoporosis (femoral neck BMD T-score ≤ -2.5) was examined in a diverse primary care population of 44,313 non-Hispanic White, 6,103 Black, 7,777 Hispanic, and 12,634 Asian women aged 65-75 years who underwent BMD screening. Those with recent fracture, osteoporosis treatment, bone disorders, and metastatic cancer were excluded. Modified log-Poisson regression was used to examine the association of diabetes and BMD-osteoporosis. Among 70,827 women, 18% had diabetes. The prevalence of diabetes was 2-fold higher in Black, Hispanic and Asian women compared to White women. Overall, women with diabetes (versus no diabetes) were more likely to be obese and, except for Hispanic women, less likely to have BMD-osteoporosis. In unadjusted analyses, diabetes was associated with lower risk of BMD-defined osteoporosis in White, Black, and Asian women, but not Hispanic women. However, the association was attenuated or no longer evident after adjusting for BMI, suggesting that the lower burden of BMD-osteoporosis in women with diabetes is mediated in part by higher BMI. These findings support consideration of diabetes when assessing fracture risk in women undergoing osteoporosis screening. However, more studies in non-White populations with a high burden of diabetes are important since these relationships appear to differ by race/ethnicity.

DO INFLAMMATION MARKERS MODERATE ASSOCIATIONS BETWEEN CAREGIVING AND QUALITY OF LIFE, HEALTH, AND DEPRESSION?

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Caregiving responsibilities can put stress and strain on older adults including emotional distress, depression, decline in physical functioning, and decreased self-reported quality of life. Chronic stress such as from caregiving may be related to chronic inflammation, but this has been less widely examined. Therefore, the purpose of this study is to examine whether the association between caregiving and outcomes including quality of life indicators, self-rated health, and depressive symptoms are moderated by physical activity, stress coping, diet quality inflammatory index, and selected biomarkers of inflammation. We used data from waves 3 and 4 of the Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS) study. In wave 3, 733 reported caregiving for grandchildren. They were mostly African American (59%) and female (55%) with a mean age was 47.7 years at the start of the study. In linear regression models, caregiving for grandchildren (CGC) predicted higher depressive symptoms and lower quality of life and self-rated health. Results demonstrated that the association between erythrocytes sedimentation rate (ESR) was a significant moderator between CGC and quality of life, self-rated health, and depressive

symptoms ($p < 0.05$). In a separate analysis of wave 4 data (152 reported caregiving for elders), serum magnesium was a significant moderator between caregiving for elders and both quality of life and self-rated health ($p < 0.05$). These results suggest that inflammatory factors may influence the health of diverse older adult caregivers. Further (or Future) research may evaluate the effect of these moderators over time.

DOES FRAILTY INFLUENCE INHOSPITAL MANAGEMENT AND OUTCOMES OF COVID-19 IN OLDER ADULTS IN THE US?

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Older age has been consistently associated with adverse COVID-19 outcomes. Frailty, a syndrome characterized by declining function across multiple body systems is common in older adults and may increase vulnerability to adverse outcomes among COVID-19 patients. However, the impacts of frailty on COVID-19 management, severity, or outcomes have not been well characterized in a large, representative US population. Using the National COVID Cohort Collaborative, a multi-institutional US repository for COVID-19 research, we calculated the Hospital Frailty Risk Score (HFRS), a validated EHR-based frailty score, among COVID-19 inpatients age ≥ 65 . We examined patient demographics and comorbidities, length of stay (LOS), systemic corticosteroid and remdesivir use, ICU admission, and inpatient mortality across subgroups by HFRS score. Among 58,964 inpatients from 53 institutions (51% male, 65% White, 18% Black, 9% Hispanic, mean age 75, mean Charlson comorbidity count 3.0, and median LOS 7 days), 38,692 (66%), 4,180 (7%), 3,531 (6%), 3,525 (6%) and 7,862 (13%) had HFRS scores of 0-1, 2, 3, 4, and ≥ 5 , respectively. Frailty was only moderately correlated with age and comorbidity ($\rho = 0.178$ and 0.348 , respectively, $p < 0.001$). Overall, 34% received systemic corticosteroid and 19% received remdesivir. We observed 4% ICU admissions and 16% inpatient death. Among non-ICU admissions, after adjusting for demographics and comorbidities, frailty (HFRS ≥ 2) was associated with 79% greater systemic corticosteroid use and 22% greater remdesivir use, whereas a higher HFRS score was marginally associated with higher rates of severe COVID disease, inpatient death, or ICU admission.

DURATION OF REPRODUCTIVE PERIOD AND RISK OF TRANSITIONING TO MILD COGNITIVE IMPAIRMENT AND DEMENTIA

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Decreasing estrogen levels have been hypothesized to be associated with increased risk of dementia, yet the current literature reveals conflicting results. This study aimed to determine whether a longer reproductive period, as an indicator of longer exposure to endogenous estrogens, is associated with risk of transitioning to MCI and dementia. Women 65 and over (N=1507) from the Rush Memory and Aging Project met eligibility for the current analysis. The average length of reproductive period (menopause age minus menarche age) was 35 years (range=16-68 years), and 64% had natural menopause. Multistate survival modeling (MSM) was used to estimate the influence of reproductive period on risk of transitioning through cognitive states including mild cognitive impairment (MCI) and clinically diagnosed dementia, as well as death. Multinomial regression models estimated total and cognitively unimpaired life expectancies based on the transition probabilities estimated by the MSM. Results suggest that women with more reproductive years were less likely to transition from no cognitive impairment (NCI) to MCI, and were more likely to return to NCI from MCI. Analyses also suggest two additional years free of cognitive impairment for women with 45 vs 25 years of reproduction, though reproduction period did not significantly impact overall life expectancy. This study suggests that the number of years of reproductive duration is not associated with the transition to dementia, but is possibly associated with delayed cognitive decline, reduced risk of MCI, increased likelihood of returning to NCI from MCI, and increased lifespan free of cognitive impairment.

EFFECTIVENESS OF A STAFF TRAINING PROGRAM TO STIMULATE PHYSICAL ACTIVITY IN HOMECARE: A CLUSTER RCT

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Reablement encourages older adults to do things themselves rather than having things done for them. To implement reablement in practice homecare staff needs the right knowledge, attitude, skills and support. This study evaluated the effectiveness of the “Stay Active at Home” reablement training program. A 12-month cluster-RCT was conducted, involving staff (n=313) and clients (n=264) from 10 homecare teams, five of which were trained. Effects were evaluated using data from accelerometers, physical performance tests, questionnaires and electronic patient records. No beneficial effects were observed in older adults for sedentary behavior; daily, physical, and psychological functioning; and falls. In homecare staff there were no statistically significant differences between study groups for self-efficacy and outcome expectations scores except for higher self-efficacy scores in more compliant staff (adjusted mean difference: 1.9 [95% CI 0.1, 3.7]). No differences were observed for any cost category except for domestic help costs in the intervention group (adjusted mean difference: €-173 [95% CI -299, -50]). The probability that “Stay Active at Home” is cost-effective

compared to usual care at a willingness-to-pay of €20,000 was 19.7%/ daily minute of sedentary time averted, 19.2%/ percent of sedentary time averted as proportion of wake/wear time, and 5.9%/QALY gained, respectively. The reablement training program needs further development based on the lessons learned before wider implementation.

EFFECTS OF TINNITUS ON COGNITION AND DEPRESSIVE SYMPTOMS OVER TIME

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Evidence suggests links among tinnitus, depression, and cognition. We examined these associations over time. We hypothesized baseline tinnitus would predict poorer cognitive performance and more depressive symptoms an average of 11.4 years later. We examined 839 men at two timepoints (baseline age M=55.94; follow-up age M=67.56). At each time point participants responded yes/no if they had tinnitus. We created three tinnitus status groups – no tinnitus at either time, tinnitus at both, and no tinnitus at baseline but tinnitus at follow-up. At both time points we measured cognitive performance with tests of episodic memory, processing speed, executive function, and verbal fluency. Depressive symptoms were based on the Center for Epidemiological Studies Depression scale. There was no association between tinnitus and any measure of cognitive performance. Depressive symptoms declined from baseline to follow-up. In separate mixed models predicting depressive symptoms, there was a significant main effect for tinnitus status at baseline (p = .003) and follow-up (p < .001). Those with tinnitus at both times had significantly higher depressive symptoms than the “No tinnitus” group (p < .001). This association remained significant after accounting for baseline depressive symptoms (p = .011) at follow-up. Results did not support the hypothesis that tinnitus would be associated with poorer cognitive function. However, depressive symptoms declined among those with no tinnitus than the other groups. The relationship between tinnitus and depressive symptoms may have implications for future cognitive performance among older adults, given previous evidence that depressive symptoms are risk factors for cognitive decline.

ENGAGING WITH AGING: A QUALITATIVE STUDY OF AGE-RELATED CHANGES AND ADAPTATIONS

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Engaging with Aging is an emerging framework proposed by Carnevali which provides a new lens to understand