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[-100.26, -23.19], and -69.87ml, [-106.54, -33.19], respectively). Individuals with high individual, or household FI had higher odds [OR] of spirometric restriction (aOR 1.02, [1.00, 1.03], and aOR 1.02, [1.01, 1.04], respectively).

**Conclusions:** Amongst US adults, high FI was associated with lower lung function and spirometric restriction.

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### Racial/Ethnic Variations in Periodontitis and Cognitive Functions in Elderly Population



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**Purpose:** Previous studies indicated periodontitis as a risk factor for cognitive decline and Alzheimer' Disease (AD). Little is known about the racial/ethnic disparity in the periodontitis and cognitive function. We examined the disparity in periodontitis, cognitive functions, as well as their relationship among elderly population =>60 years by race/ethnicity.

**Methods:** We analyzed data from the National Health and Nutrition Examination Survey (NHANES) 2011-2014 of elderly population =>60 years. Periodontitis is categorized as mild, moderate, and severe. Cognitive functions were assessed using the CERAD Word Intrusions (CERAD-WI) and Digit Symbol Score Test (DSST). We analyzed the data using multiple linear regression taking into consideration the design and weight of the survey.

**Results:** Of the 383 participants, 6.4% were Hispanics, and 6% were Blacks, 43% had moderate periodontitis (54% in Hispanics and 50% in Blacks,  $p < 0.05$ ), and 9% has severe periodontitis (18% in Hispanics and 24% in Blacks,  $p < 0.05$ ). Overall, cognitive functions did not vary by race/ethnicity ( $p > 0.05$ ). There was no independent association between periodontitis and cognitive functions ( $p > 0.05$ ), but this association existed among Hispanics and Blacks ( $p < 0.05$ ). Elderly Hispanics with severe periodontitis had a lower adjusted score of DSST relative to those with no/mild periodontitis ( $p < 0.05$ ). Among Blacks, severe periodontitis was associated with CERAD-WI ( $p < 0.05$ ).

**Conclusions:** Our study indicated that minority elderly with periodontitis were more likely to have their cognitive functions affected than Whites. Providers should screen for periodontitis, especially among the minority populations, and promote proper oral healthcare. Future longitudinal studies are recommended to examine periodontitis and AD link.

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### The Effect of Breastfeeding Duration on Domain-Specific Neurocognitive Performance



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**Purpose:** There is scant information on whether certain cognitive domains are differentially impacted by breastfeeding. Causal inference techniques are applied to assess the association between breastfeeding duration and domain-specific cognitive effects.

**Methods:** The association between breastfeeding duration and cognitive performance was investigated using baseline data of 9-10-year-olds enrolled in the Adolescent Brain Cognitive Development study ( $n = 9,116$ ). Principal component analysis with varimax-rotation was used to extract standardized component scores from a battery of neurocognitive assessments. Propensity score weighting was used to balance the distribution of observed covariates for children breastfed for 0, 1-6, 7-12, and more than 12 months. Sensitivity analysis was conducted to assess the robustness of the effect estimates.

**Results:** Breastfeeding duration was significantly associated with a greater average treatment effect (ATE) in general cognitive ability scores, especially when comparing children breastfed for more than twelve months with those never breastfed (ATE = .262, 95% CI .178, .350,  $p < .001$ ). Any amount of breastfeeding was strongly associated with greater general cognitive ability scores. A significant association was not observed between breastfeeding duration and neurocognitive assessments encompassing executive function and learning/memory. Sensitivity analysis revealed that unmeasured

confounding nearly two times the magnitude of the effect of a mother's education is necessary to explain away the significant association between breastfeeding duration and general cognitive ability.

**Conclusions:** Breastfeeding duration has domain-specific cognitive effects. Although causal inference techniques cannot completely account for the influence of unmeasured confounders (e.g. maternal IQ), they are unlikely to substantively change the strong association between breastfeeding duration and general cognitive ability.

### Meat Processing Facilities and County Level Risk Factors for COVID-19



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**Purpose:** More than 30,000 meat production workers have reported COVID-19 infections. The purpose was to determine if counties with higher proportions of population employed in meat processing had higher incidence of COVID-19 infection after accounting for other population level risk factors.

**Methods:** COVID-19 case data were obtained from the COVID-19 Data. The proportion of population employed at meat processing facilities was obtained from Bureau of Labor Statistics. Other county level variables included race/ethnicity, poverty, education, population residing in nursing home facilities; jail population, and presence of a prison facility.

Poisson regression generated incidence rate ratios (IRR) to model the association between proportion employed in meat processing and the incidence of COVID-19 while controlling for other factors. State was also included as a covariate to account for differences in testing between states. Maps with county level risk estimates were generated to visualize potential hotspots.

**Results:** Counties with higher proportion of employment in meat processing facilities had significantly higher incidence of COVID-19 (IRR = 1.77; 95% CI: 1.76-1.78) after adjusting for other county level variables. Controlling for differences between states resulted in a significantly higher rate of COVID-19 in counties with higher proportions employed in meat processing facilities (IRR = 1.25; 95% CI: 1.24-1.26). Counties with higher proportion of Black and Hispanic populations, higher nursing home populations, and a prison located in the county also had significantly higher incidence of COVID-19.

**Conclusions:** After accounting for state differences and other county level factors, higher levels of employment in meat processing facilities increased the incidence of COVID-19 infection.

### Rural and Racial Disparities in Colorectal Cancer Incidence and Mortality in South Carolina, 1996 – 2016



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**Purpose:** Colorectal cancer (CRC) is the third leading cause of cancer mortality in the US and South Carolina (SC) with persistent racial disparities in age-adjusted incidence and mortality. This study assessed the CRC burden in SC where high proportions of rural (33.7%) and Black (27.9%) populations reside. **Methods:** CRC incidence, staging, and mortality data were from the SC Central Cancer Registry. Urban-rural status was based on Urban Influence Codes (1-2 = urban; 3-12 = rural). Mortality-to-incidence ratios (MIRs) for each SC county in 2012-2016 were illustrated using ArcGIS Version 10.5.1. Chi-square tests were calculated to examine differences in CRC stage by urban-rural status and race. Annual average percent change (AAPC) were calculated to examine trends in incidence and mortality rates across urban-rural and racial subgroups between 1996 and 2016.