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Biomarkers or biological pathways

The association between everyday discrimination and accelerated biological aging among older adults in the United States Francisco Rios Casas* Francisco Rios Casas, Christy L. Erving, Mateo P. Farina,

Experiencing discrimination in midlife has been associated with a range of poor age-related health outcomes, including morbidity, disability, and death. Physiological dysregulation may underlie the association between discrimination and age-related health in older adulthood. In fact, prior studies have found that that discrimination was associated with worse immune, metabolic, and renal functioning. However, the impact of discrimination on physiological function may impact many different systems simultaneously, making it a social determinant of health more broadly. Recent advancements in geroscience have led to the creation of multi-system biological aging measures that are associated with several age-related health outcomes to better address these questions. In this study we use the 2016 Venous Blood Study (VBS) in the Health and Retirement Study, a nationally representative study of older adults, to understand how everyday discrimination experiences may impact biological aging based on the recent 22-marker biological age measure developed by Crimmins et al. 2021. Two characteristics of discrimination were considered: the frequency of experiencing discrimination in everyday settings and the number of attributes of discrimination. Preliminary results indicate a large and strong association between the frequency of discrimination and discrimination attributions with accelerated biological aging. Results were robust to sociodemographic controls that included gender, race/ethnicity, education, and foreign-born status. Further analysis will explore whether these associations differ across race and gender groups as well as consider which types of attributes may have the strongest association with accelerated biological aging. Overall findings from these studies highlight the ways that discrimination may be embodied to influence health across multiple domains in older adulthood.

Biomarkers or biological pathways

Incarceration Exposure, Biological Aging, and Depression Symptoms in an African American Sample of Older Adults

Mark Berg* Mark Berg,

The study draws upon perspectives on life-course stressors and health to assess whether lifetime incarceration exposure is a determinant of biological aging and self-reported depression.

Using data from a sample of 462 African American participants (average age= 57) in the Family and Community Health Study, the study examined two epigenetic indices of biological aging, DunedinPoAm and GrimAge, as well as a self-reported measure of depression symptoms. Estimates were derived from multivariate regression models with adjustments for selection on observables and confounding factors. Regression models reveal that exposure to incarceration was a significant determinant of accelerated biological aging (GrimAge) and the pace of aging (DunedinPoAm) and depressive symptoms.

Overall the results suggest that among formerly incarcerated older adults, past experiences with the stressors of incarceration predict key biomarkers of physiological deterioration and depressive symptoms. Incarceration contributes to the mental and physical health burden of older adults.

Biomarkers or biological pathways

Neurodegeneration Biomarkers Help Explain Association between Inflammation and Cognitive Dysfunction

Eric Klopack* Eric Klopack,

There is past evidence that immune aging (or immunosenescence) and high systemic inflammation are associated with cognitive dysfunction and ADRD. However, it is unknown whether these immune-related aging processes are associated with neurodegeneration, tauopathy, amyloid accumulation, and/or vascular issues in the brain.

To address this gap, we utilized a set of recently assayed highly innovative markers of neurodegeneration, biomarkers of inflammation, and proportions of naïve lymphocytes (indicative of less immune aging), and cognitive dysfunction (errors on the Telephone Interview for Cognitive Status) in the Health and Retirement Study, a nationally representative sample of US adults over age 50 (N = 3985). This is the first time a longitudinal population representative study has simultaneously collected detailed immunotyping, and blood-based biomarker data. These data, therefore, present a unique opportunity to understand how biological processes interact to affect biological risk for ADRD at the population level. This type of data is essential for understanding what processes can be detected at the population level, and thus, what interventions may have large, robust effects for inequalities in the aging process and for promoting interventions to promote healthy cognitive aging.

Using structural equation modeling (SEM), we estimated latent factors representing neurodegeneration (neurofilament light chain (NfL), glial fibrillary acidic protein (GFAP), and phosphotau 181 (pTau181)), inflammation (c-reactive protein, IL10, IL1 receptor agonist, IL6, TNF receptor 1, albumin, and percentage of neutrophils), and immune aging (percentages of naïve CD8+ and CD4+ T cells). Results indicate inflammation is associated with neurodegenerative biomarkers ($\beta = .31$, $p < .001$) and with cognitive dysfunction ($\beta = .08$, $p < .001$) after controlling for age, race, gender, education, BMI, smoking, drinking, and immunosenescence. Neurodegenerative biomarkers mediated about half of the association between inflammation and cognitive dysfunction.

It appears that greater systemic inflammation may be associated with brain damage and tauopathy. Interventions focused on reducing systemic inflammation may be successful in reducing neurodegeneration and cognitive dysfunction in older adults.

Biomarkers or biological pathways

Epigenetic consequences of grandparental loss for children Michelle Livings* Michelle Livings, Emily Smith-Greenaway,

Growing literature emphasizes bereavement as an underexplored determinant of population health. Some work suggests that childhood health is especially affected by deaths of family members. While most work has focused on the loss of a parent or sibling in childhood, recent work has explored grandparental death as a source of poor development and mental health. Despite implications for children's general wellbeing, we know less about whether grandparental death affects children biologically, potentially imprinting them in a way that is consequential for their physical health. In this study, we offer the first analysis of the epigenetic consequences of grandparental loss for children.

We used data from the Future of Families and Child Wellbeing Study (FFCWS), focusing on mother-child dyads in the year-5 and year-9 surveys who have complete data on children's telomere length at around age 9; telomere length is a common epigenetic measure that represents biological age. The results show that grandparental death is associated with telomere length, but that the association is gendered – in terms of both the child and the decedent. Specifically, a grandmother's recent death corresponded with a 10% decrease in girls' telomere length at around age 9 ($p<0.001$). In contrast, boys were not epigenetically affected by the death of either a grandmother or grandfather. This defies earlier work showing that the developmental and mental health adversity associated with losing a grandparent is concentrated among boys.

This study adds to recent work demonstrating that grandparental death is a unique health risk factor for children. Further, this study emphasizes the need to consider the role of family bereavement, including the relatively normative loss of a grandparent, in population health disparities.

Chronic disease

How does the food choice autonomy during the grades of 7 to 12 influence or contribute to the body mass index of individuals? Haotian Zheng* Haotian Zheng, Muntasir Masum,

Introduction:

Previous research has demonstrated a significant relationship between income and body mass index (BMI). Income has an inverse relationship with BMI. Not only is income a factor, but food choice also plays a crucial role in BMI. The ability to form healthy food behavior is a possible component of food choice, and it varies among individuals based on their autonomy in making food choices during childhood. This research aims to investigate how childhood autonomy influences an individual's BMI throughout their life. Additionally, childhood household income will be used as the baseline income for the effect measure modifiers to account for and illustrate any differences in the effect based on baseline income levels.

Methods:

This research used public-use data from waves I, IV, and V retrieved from the National Longitudinal Study of Adolescent to Adult Health, with a sample size of 3,713. The outcome variable is the time-varying BMI, with the main exposure being time-invariant food autonomy during childhood (baseline). To account for covariates, we included sociodemographic and parental characteristics, such as time-varying factors: participants' education status, age, household income, and time-invariant factors: such as parents' baseline and sports activity frequency, race, and gender. Additionally, household income from the first wave is used as an effect measure modifier, dividing the sample into three groups: low-income (less than $75,000 household income), mid-income (between $75,000 and $100,000), and high-income (more than $100,000). We used generalized estimating equations (GEE) to examine if autonomy's impact on BMI varied across different income groups.

Results:

Among the participants, 17.5% (n = 652) had no food autonomy, while the remaining 82.5% (n = 3061) were able to choose food freely. Groups of people who had food autonomy showed a slightly higher mean BMI across the three waves: 0.5 in Wave I, 0.1 in Wave IV, and 0.1 in Wave V. Preliminary results indicate that among individuals in the low-income group at baseline, those with food autonomy had a BMI 1.6 units higher than those without food autonomy. However, no statistically significant relationship was found in the mid and high-income groups. We also expect to identify the trajectories of BMI in mid-income and high-income upon identifying more potential covariates.

Conclusion:

Food autonomy affects people's BMI if they are in the low-income group. Controlling for numerous time-varying variables from adolescence (Wave I) to early midlife (Wave V) resulted in attrition and a reduction in our sample size. We plan to use the restricted-use Add Health data to access the full nationally representative sample. Future research will explore groups beyond low-income individuals to determine whether the lack of statistically significant findings stems from overlooked covariates or if there truly is no association.

Chronic disease

Awareness of lifestyle modifications as primary prevention for metabolic syndrome in the Deep South Utsav Nandi* Utsav Nandi, Jonathan “Nate” Davis, Sabrina Alam, Emma McNeill, Avery Bouchillon,

Introduction

Metabolic syndrome (MetS) increases the risk of developing cardiovascular disease (CVD) & diabetes, which shortens years & quality of life. MetS affects 1 in 3 US adults. Predisposing factors include obesity, sedentary lifestyle & poor diet. Lifestyle modifications are crucial to manage metabolic risk factors. The emergency department (ED) is a novel location to assess a high-risk population’s awareness of such modifications.

Methods

A convenience sample of adult patients were enrolled from an urban hospital ED in the Deep South. Patients were eligible for inclusion if they had risks for MetS: elevated body mass index (BMI)/abdominal obesity, high triglyceride, high glucose, low HDL, or a history of hypertension, CVD, or diabetes. They were surveyed on their awareness of their metabolic risks, counseling on physical activity (PA) & nutrition, & self-efficacy to modify lifestyle.

Participants were provided the “Answers by heart” fact sheet on MetS by AHA & 1:1 counseling on attainable & sustainable lifestyle modifications by investigators.

Results

85 participants were enrolled between Feb – May 2022. The mean age was 46 years (SD 14), 47 (55%) were female, 67 (79%) were Black & the median BMI was 37.8 (IQR 34 – 46). 29 (34%) participants had CVD & 57 (67%) had diabetes. 66 (78%) participants were unaware of their metabolic risk factors.

46 (54%) had ever had a health care professional discuss lifestyle modification strategies with them; 43 (51%) had been counseled on PA, while 40 (47%) had been counseled on nutrition. 76 (89%) felt they could make changes to improve their health. All 85 (100%) participants found the recommendations provided by investigators helpful.

Conclusions

This study showed that 3 in 4 participants were unaware of their metabolic risk factors & only half had received any counseling on PA or nutrition. We demonstrated the feasibility of counseling on lifestyle modification in the busy ED setting & that participants highly valued the counseling provided.

Chronic disease

Association between Tinnitus and Physical Activity among Participants in the Jackson Heart Study Aaron Griffith* Aaron Griffith, Elizabeth Heitman, Xiaoqian Zhu, Olivia Affuso,

Introduction Sensory impairments have previously been linked to lower levels of physical activity (PA). We explored the impact of the sensory impairment tinnitus on PA among African Americans in the Jackson Heart Study Ancillary Hearing Study (JHS AHS). JHS AHS found tinnitus to be a prevalent sensory impairment in that population (29.5%), with 35% of participants with tinnitus reporting some related disability.

Methods: We conducted a cross-sectional analysis of a sample of 1,314 participants from the JHS AHS. Prevalence of tinnitus was obtained from self-report responses to the question “Do you have tinnitus (ringing, buzzing, “crickets,” or other sound) in your ears?” (yes/no). PA was measured using a validated survey across 4 domains (active living, work, home and garden, and sports and exercise) to estimate minutes of weekly PA. Following Life’s Simple 7 guidelines, participants who engaged in ≥ 150 minutes/week of moderate or ≥75 minutes/week of vigorous PA were classified as having ideal PA; those below these thresholds were considered to have less than ideal PA. We employed logistic regression to determine whether self-reported tinnitus was associated with a reduced likelihood of having ideal PA, adjusting for relevant risk factors.

Results: Our analysis sample (N=1,256) had a mean age of 62 (±11) years and a mean BMI of 32.3 (±7); 30% (n=382) were male. Among the 369 participants with tinnitus, 95 (25.8%) reported ideal PA; among the 887 who reported no tinnitus, 221 (24.9%) had ideal PA. No association was found between tinnitus and PA (OR = 1.27, 95% CI: 0.95-1.71).

Conclusion: Although many participants reported impairment from tinnitus, there was no evidence to suggest that tinnitus itself limited the likelihood of achieving ideal PA, relative to those without tinnitus.

Chronic disease

Trends in immunosuppression prevalence among US adults since the COVID-19 pandemic: NHIS 2021-2022 Austin Le* Austin Le,

Background & Significance: The prevalence of immunosuppression among adults in the US has increased over the past decade based on nationally representative data. Immunosuppression poses a significant public health concern given heightened susceptibility to infections and decreased response to immunizations, a particularly salient concern following the COVID-19 pandemic. It is thus critical to examine immunosuppression trajectories to inform public health strategies to address the needs of immunocompromised individuals.

Research question: Does the prevalence of immunosuppression increase between 2021 to 2022 among US adults?

Data/Methods: A cross-sectional, observational study of the National Health Interview Survey 2021-2022, a nationally representative US survey, was conducted. Immunosuppression was defined as: (a) having a healthcare provider-diagnosed immunosuppressive health condition, (b) taking prescription medication or treatment that weakens the immune system, or (c) having a hematological cancer for the past two years. Prevalence estimates were age-standardized using the 2010 US census standard population. Rao-Scott chi-square tests were used to compare immunosuppression prevalence by survey year.

Preliminary results: The study sample included 56,424 adults, representing 251,118,998 noninstitutionalized adults in the US (mean age: 52.7 years, SD: 18.4). The age-standardized prevalence of immunosuppression increased from 6.4% (95% CI: 6.1, 6.7) in 2021 to 7.2% (95% CI: 6.8, 7.5) in 2022 ($p<0.05$).

Conclusion: The prevalence of immunosuppression has increased nationally between 2021 and 2022. Future study is needed to identify drivers of this observed increase.

Structural factors

Too Young to Die but Too Poor to Retire: Effects of Job Lock on Cardiovascular Disease

Laura Chen* Laura Chen,

Introduction: Retirement has heterogeneous and bidirectional effects on health, but little attention has been paid to the contexts underlying individuals' decisions to retire or continue working. Job lock (JL) refers to a phenomenon where individuals continue working out of necessity despite a desire to retire or leave their job, representing a critical yet overlooked dimension of how retirement affects health. As increasing retirement ages continue to disproportionately burden low-wage workers, JL may yield important insights about how social policy contributes to unfavorable morbidity trends and health inequities in later life.

Methods: Using data on 5,594 participants from the Health and Retirement Study who were currently working in 2008/2010, I tested the hypothesis that JL would be associated with subsequent cardiovascular disease (CVD), even after controlling for baseline sociodemographics, health behaviors, and comorbidities. I used logistic regression to capture the effect of JL on odds of reporting CVD 4 years (2 waves) later. Discrete-time survival analysis was then conducted using pooled logistic models to test the effect of JL on odds of incident CVD over 10 years (5 waves).

Results: JL is highly prevalent: 78% of working older adults answered "yes" to at least one of two JL questions ("Right now, would you like to leave work altogether, but plan to keep working because… you need the money? … you need health insurance?"). After adjusting for confounders, I find a significant effect of JL on CVD 4 years later (OR 1.31, 95% CI 1.05, 1.64). Adjusted survival analysis models that control for time/wave effects likewise find job locked individuals to have consistently elevated odds of incident CVD (OR 1.13, 95% CI 1.05, 1.22).

Conclusions: JL is associated with elevated CVD risk among working older adults. Policies intended to prolong labor force participation should consider the health effects of JL, and future studies will require more careful consideration of who delays retirement, and why.

Social/relational factors

Predictors of social isolation and loneliness in adults aged 18-60: A systematic review

Meaghan Donewar* Meaghan Donewar, Stephanie Broyles,

Introduction: Social isolation and loneliness are two constructs of social relationships used to measure one's degree of social connectedness/social support (or lack thereof). The World Health Organization defines social isolation as a "lack of contact with family, friends or other people". It is an objective measure based on an individual's network size, diversity, and frequency of contact. Loneliness is defined as a distressing feeling resulting from a discrepancy between actual and desired social relationships and accompanies the perception that one's social needs are not being met. It reflects a subjective state of lacking the preferred affection and closeness to a significant other, close confidant, or family member. Social isolation and loneliness have been associated with increased health risk behaviors, stress, inflammation, chronic health conditions, and mortality. Many studies have examined social isolation and loneliness as predictors of morbidity and mortality, but few have considered social isolation and loneliness as outcomes.

Objective: The aim of this systematic review was to synthesize the extant literature on the prevalence and predictors of social isolation and loneliness in community-dwelling adults aged 18-60.

Methods: Systematic searches were conducted according to PRISMA guidelines using six electronic databases. Inclusion was limited to studies that were 1) published in English, 2) conducted between January 2000 and December 2022, and 3) in community-dwelling adults 18-60 years old. First, one reviewer screened all titles and abstracts. Next one reviewer conducted full text screening followed by data extraction and quality assessment. A second reviewer performed data extraction and quality assessment on a subset of articles, and the results were compared and discussed. Quality was assessed using the Joanna Briggs Institute Checklist for Analytical Cross-Sectional Studies.

Results: Fifteen publications were included in the review, two with social isolation as the outcome, twelve with loneliness as the outcome, and one with both. Prevalence ranged from 5-9% for social isolation and 4-36% for loneliness. Predictors of social isolation and loneliness were categorized into sociodemographic, psychological, and social/cultural factors. Preliminary analysis of predictors shows being unemployed and having depression are positively associated with social isolation, while being younger, living alone, having a lower income, and living in urban areas are positively associated with loneliness.

Place/Communities

Co-developing a Community-informed Measurement Tool for Belonging Monique Quinn* Monique Quinn, Nikki Downey, Kate Hanisian, Carley Riley,

Background: Loneliness is a known social driver of lower life expectancy, while a strong sense of belonging correlates with longevity. Existing research to improve belonging focuses on employment and educational spaces. To broaden that lens, our community-academic partnership utilized participatory methods to discover the community’s understanding of belonging and then develop a set of scalable measurements. Measures of belonging that are community-informed in their origin are needed to support site-specific efforts to improve belonging, and thereby longevity.

Method: We conducted focus groups of YMCA members aged 12 years and older, utilizing purposeful sampling to ensure representativeness of members across self-reported age, gender, race, and socioeconomic status. When theoretical saturation was reached, two team members individually coded each transcript. We aggregated themes into a code book, discussing any discrepant code until consensus was reached. We compared community members’ understanding of belonging to existing validated measurements, identifying questions that assessed belonging as conceptualized by the YMCA community. We utilized external member checking to ensure face validity of the new tool.

Results: We held five focus groups, with a total of 30 participants. Most participants discussed belonging as ‘state-specific’ rather than as a core psychological need. There were some differences in belonging conceptualization by age group. Relevant themes across all groups include the importance of agency, active engagement, feeling valued, and belonging spaces as a place where a person can be their authentic selves without judgment. Associated constructs included connection, companionship, community, and to not be alone. After comparing YMCA member conceptualization of belonging to existent literature, we created a six-item measurement tool. Member checking is currently under way. By September 2024, we will have the final questionnaire and preliminary results.

Health equity

Assessing the Impact of the COVID-19 Pandemic on Health Disparities in the United States: A Comparative Study with 2016 Baseline Data Jae Man Park* Xiao Li, Xiao Li,

INTRODUCTION – While the immediate threat of COVID-19 has begun to recede, the ongoing investigation into its long-term impacts continues to unfold. Despite pervious research into the myriad effects of the COVID-19 pandemic—ranging from unparalleled public health crises and economic instability to the intensification of pre-existing health and socioeconomic disparities—there remains a significant gap in our understanding of life expectancy disparities during this period. This oversight is critical because life expectancy disparities offer a comprehensive measure of the pandemic’s impact, reflecting not only the immediate health outcomes but also the broader, long-term social and economic effects on different groups. Understanding these disparities is essential for developing targeted interventions that can address not just the symptoms, but the root causes of inequality exacerbated by the pandemic.

METHODS – Our study utilizes data from the 2020 American Community Survey, the National Vital Statistics System, and CDC WONDER. Following the approach of Kowal et al., we stratify the U.S. population based on socioeconomic status, utilizing the Social Vulnerability Index, along with race, ethnicity, age, and geography, to analyze health disparities. This stratification allows for a detailed examination of variations in life expectancy (LE), disability-free life expectancy (DFLE), and quality-adjusted life expectancy (QALE). Our analysis incorporates both fixed and random factors to facilitate a comparison with the results of a 2016 study. To enhance the representativeness of our dataset, we apply Bayesian statistical methods to effectively manage issues related to missing or suppressed data.

PRELIMINARY RESULTS RESULT/IMPLICATIONS – Our study highlights an escalation in disparities across LE, DFLE, and QALE in the U.S. during the COVID-19 pandemic, compared to 2016. These growing health inequalities have predominantly impacted disadvantaged communities, including minority groups, low-income families, the elderly, and residents of economically disadvantaged areas. The findings emphasize the importance of developing and implementing community-based interventions that involve local stakeholders. Such targeted strategies are vital for addressing the distinct needs and cultural nuances of these vulnerable groups, promising more effective and resonant health outcomes.

Health equity

Changes in Life Expectancy during the COVID-19 pandemic, by US county, race, and ethnicity Laura Dwyer-Lindgren* Laura Dwyer-Lindgren, Parkes Kendrick, Yekaterina O Kelly, Mathew M Baumann, Paula D Strassle, George A Mensah, Eliseo J Pérez-Stable, Christopher JL Murray, Ali H Mokdad,

The US experienced large declines in life expectancy during the first two years of the COVID-19 pandemic. Both the pattern (i.e., decline in both years vs decline in 2020 and increase in 2021) and size of the decline varied substantially by race and ethnicity; however, less is known about variation across counties. We extended an earlier analysis of life expectancy by county and race and ethnicity to investigate changes between 2019 and 2021. This analysis applied validated small area estimation models to National Vital Statistics System death records and National Center for Health Statistics and US Census Bureau population estimates.

Life expectancy declined from 2019 to 2020 for every racial and ethnic population in nearly every county. From 2020 to 2021, life expectancy declined further, though usually by a smaller amount, in nearly all counties for the American Indian/Alaska Native (AIAN) population, large majorities of counties for the Black and White populations, and smaller majorities of counties for the Asian and Latino populations. Among counties where life expectancy increased from 2020 to 2021, the increases were insufficient to make up for earlier declines, leaving life expectancy lower in 2021 than in 2019 in every county, for every racial and ethnic population. The maximum decline—defined as the difference in life expectancy between 2019 and the lower of 2020 and 2021—ranged from less than a year to nearly 9 years (IQR: 2.5–4.2) across counties and racial and ethnic populations. County-level declines were typically largest for the AIAN, Black, and Latino populations, and smaller (but still substantial) for the Asian and White populations.

Life expectancy declines from 2019 to 2021 were effectively universal in the US; however, the pattern and size of decline varied dramatically. AIAN, Black, and Latino populations in many parts of the US experienced shockingly large declines, facilitated by long-standing structural inequities by race and ethnicity.

Interventions/Programs

TRANS EQUITY PROJECT: A MULTICOMPONENT INTERVENTION TO IMPROVE HIV PREVENTION AND CARE CONTINUA OUTCOMES AMONG MEN AND WOMEN OF TRANSGENDER EXPERIENCE Allysha Maragh-Bass* Allysha C. Maragh-Bass, Elena Cyrus, Tatyana Woodard, Lekiah Lescott, Emily Arnold, Mallory Johnson, Omar Martinez,

BACKGROUND: Men and women of transgender experience encounter HIV-related health inequities based on race across the HIV care continua. Structural-level discrimination, less access to providers who can provider competent care, and social determinants including greater rates of housing instability and limit economic equity are persistent barriers to care correlated to greater HIV incidence. **METHODS:** To understand the needs and identify intervention modalities, we explored HIV prevention and care needs via focus groups, surveys, and Sexually Transmitted Infection (STI) testing experiences (N=40); we supplemented these data via in-depth interviews with peer navigators. Our recruitment process partnered with community-based organizations well respected in the Northeast Corridor of the US; case managers from these organizations held leadership roles in our work at all phases. This study was conducted from 2020-2022. Analytic processes for qualitative and quantitative data included coding and descriptive statistics, respectively. We also shared results with community partners for their review and inclusion as authors on this abstract and subsequent publication. **RESULTS:** Nearly two-thirds identified as Black (63%), and one-fifth identified as Latinx. Nearly 90% of participants reported ever having HIV tests; one-fourth of participants tested positive for other STIs. Qualitative analyses yielded three core intervention components for men and women of transgender experience: 1) Self-Care and Comprehensive Trans Care; 2) Communication and Relationship Building; and 3) Life Skills and Professional Development. Study participants, community and scientific advisory board members agreed on the need for a peer-led, group-level intervention in English and Spanish. **CONCLUSIONS:** These needs and priorities are conducive to future interventions which build community agency, structural approaches, and health equity centered on men and women of transgender experience of color. Policymakers need to consistently advocate for challenging ever-increasing rates of anti-LGBTQ legislation which exacerbate inaccessibility of care. Telehealth infrastructure, transgender health competence, and holistic care which addresses needs beyond HIV prevention is mandatory for healthcare providers to begin crossing the care chasm individuals of transgender experience continue to face.

Interventions/Programs

Results of a randomized prospective impact assessment of Those Nerdy Girls vaccine promotion messages on adult vaccine knowledge, attitudes, and behavior Malia Jones* Malia Jones, Roopa Sheshadri, Jennifer Dowd,

Several direct-to-public science communication efforts arose during the COVID-19 pandemic. Understanding of such efforts on readers' vaccination knowledge, attitudes, and behaviors remains, however, limited. We report the results of a prospective, randomized impact evaluation of vaccine-related messaging by the science communication effort, Those Nerdy Girls (TNG), to their more than 12,000 TNG newsletter subscribers on vaccine knowledge, attitudes, and behaviors of readers. All TNG newsletter subscribers were randomized to a control or intervention group. Between Oct 2023 and Jan 2024, intervention readers received 24 short essays written by TNG authors specifically targeting four adult vaccinations (COVID-19, influenza, shingles, and RSV) in addition to regularly scheduled messages. Control group readers received only regularly scheduled messages. Pre- and post-intervention vaccine knowledge, attitudes, and behaviors were assessed for each group. 1,966 readers completed the pre-intervention survey and 2,231 completed the post-intervention survey (including 1,103 who completed both). Responses were evenly divided across intervention and control groups. At pretest, 27% of age-eligible participants had received an RSV vaccine; 68% had received a shingles vaccine; 72% had received a flu vaccine; and 60% had received an updated 2023 COVID-19 vaccine. At posttest, the prevalence of vaccination was 43% for RSV, 71% for shingles, 74% for flu, and 62% for the 2023 COVID-19 vaccine. We will present an analysis of pre-/post-intervention change in reader knowledge, attitudes, and vaccination status, comparing change among control participants to change among intervention participants.

Health care/services

Healthcare Services Utilization Factors among Arab Refugees Residing in San Diego

Rawnaq Behnam* Rawnaq Behnam, Amanda Kazzazi, Zaid Kamal, Raghad Aljenabi, Lana Bridi, Jasmine Kaduthodil, Tala Al-Rousan,

Question: What factors influence Arab refugees’ healthcare utilization?
Significance: As a result of interacting complex factors, 1 in 74 people are forcibly displaced including 36.4 million being refugees. While refugees may be provided public health insurance after resettlement, many barriers to healthcare access influence their healthcare-seeking behaviors. Our research aimed to explore and characterize the dynamics and factors of healthcare utilization by the Arab refugee community in San Diego, CA, discerning areas where the US healthcare system can improve to meet their unique needs.
Method: This exploratory study employed a qualitative methodology. A total of 35 refugees, (mean age of 53), resettled in San Diego, CA, were interviewed in Arabic through four gender-concordant focus groups and 19 semi-structured interviews. Focus groups and interviews were audio recorded, transcribed, translated, and inductively coded using ATLAS.ti software. A thematic approach was used to conceptualize the data using the Immigrant Healthcare Services Utilization theoretical framework.
Results: Themes included 1) healthcare needs factors: Pre-settlement experience-trauma exposure impacting current mental health needs, leading to worsened mental health due to migration-related stress, and chronic disease and comorbidities; 2) resource factors: better available healthcare resources in the U.S., difficulty navigating the complex U.S. healthcare system created barriers to accessing services, provider-patient communication barriers which exacerbated the stress associated with seeking care, and reliance on social/community support for resources information and stress management; 3) predisposing factors: loss of socioeconomic status and loss of social network; and 4) contextual factors: discrimination, unaffordable healthcare before resettlement has exacerbated current health, and different approach to healthcare in homeland created unique expectations that US providers must negotiate.

Health equity

Promoting early childhood mental health equity for Chinese American Families through a culturally tailored digital solution Yaena Song* Yaena Song, Yi-Ling Tan, Angel Mui, Grace Tian, Nicole Huang-Greco, Bethany Blankenbeckler, Bonnie Kerker, Qiuqu Zhao, Radhika Gore, Timothy Verduin, Simona Kwon,

Background: Chinese American (CA) immigrant families have limited access to evidence-based resources, care and provider communication on early childhood mental health due to limited English proficiency and access to patient-facing electronic medical record (EMR) portals. *OurChild* project aims to address childhood mental health disparities by providing accessible in-language and culturally-tailored information for CA parents of young children using a digital solution. We co-designed a web-based application with a safety net clinic serving a majority CA immigrant population and CA service organizations. **Methods**: We conducted a mixed methods study including: 1) key informant interviews with healthcare providers (n=6), community leaders (n=2); 2) two focus groups with CA immigrant parents (n=11); and 3) four user-testings of the low-fidelity web-app prototype with parents (n=11). **Results**: Findings informed the user-centered design process of the web-app. All participants expressed the need for in-language resources. Parents shared their areas of concerns related to their child's mental health. Parents are familiar with using Chinese online resources and prefer designs that are similar to them. Providers confirmed the need for a patient-provider digital solution given the CA patients' limited use and access to the patient-facing EMR portal due to lack of Chinese translation. Providers and community leaders reported that integration of the web-app to patient's EMR would be helpful to start the discussion for children who may need referrals or services. **Conclusions**: The user-centered and culturally-tailored design approach is informing the development of a promising web-based app that will address a health disparities gap and facilitate access to reliable resources for the CA parents and providers.

Health equity

Improving cancer services for Asian populations: a participatory action research study from the Asian community in St. Louis, Missouri Bailey Martin-Giacalone* Bailey Martin-Giacalone, Brynn Lau, Sunny Lin, Erin Linnenbringer,

Background: Cancer is the leading cause of death in the U.S. Asian population, yet the St. Louis region’s primary cancer center has few culturally tailored services for Asian communities. Thus, we conducted a participatory action research study to identify how cancer services can be improved for Asian communities in St. Louis. **Methods**: We recruited 20 individuals who self-identified as Asian, were ≥15 years old, and were a cancer survivor, cancer survivor caregiver, or had a family history of cancer. Participants engaged in two phases: 1) building community relationships and discussing health challenges, and 2) identifying needs related to cancer services using photovoice. In phase one, we hosted six workshops on Asian history, migration, and culture, identified community assets, and strengthened community listening and power. In phase two (completed by May 2024), participants will use photovoice to document community concerns, identify needs related to cancer services through group discussion of photographs, and share results with policymakers. **Results**: Participant age ranged from 15 to 64 years; ethnic identity represented East Asia (N=8), South Asia (N=6), Southeast Asia (N=5), Southwest Asia (N=1), and the Pacific Islands (N=1). In phase one, participants discussed the following challenges among Asian communities: 1) generational differences in preference for alternative medicine and approaches to cancer prevention; 2) cancer as a taboo subject coupled with limited health research among Asian populations, and 3) lack of universal healthcare and access to affordable, healthy foods. These preliminary themes will be further explored in phase two. **Conclusion**: This work elevates the voices of Asian communities in the Midwest, an often-overlooked group in health research. Our project empowers community members to drive the research process and share results with policymakers, who may consider these findings when improving cancer services and engagement initiatives.

Environmental factors

Legacy Lead Exposures and Elevated Psychopathology in the US Population over the Past 75 Years

Michael McFarland* Michael McFarland, Aaron Reuben, Matt Hauer,

Background

Half of the current US population was exposed to adverse lead levels in early childhood over the last seventy-five years. Lead is a potent neurotoxicant implicated in the development of diverse psychopathologies. Total contribution of legacy lead exposures to population mental health and personality has yet to be evaluated.

Methods

We combined serial, cross-sectional blood–lead level (BLL) data from the National Health and Nutrition Examination Survey (NHANES) with historic leaded-gasoline consumption data and population estimates from the US Census, the Human Mortality Database, and the United Nations to estimate US childhood BLLs from 1940 to 2015 and calculated population mental-health symptom elevations based on published lead-psychopathology associations using demographic techniques. We utilized data on children aged 5 and under in the US exposed to seven blood-lead level categories from 1940 to 2015: <4.99; 5 to 9.99; 10 to 14.99: 15 to 19.99; 20 to 24.99; 25 to 29.99; and ≥30µg/dL. Lead-attributable population counts of outcome variables included: 1) General Psychopathology “points,” reflecting an individual’s liability to mental disorder across all major DSM-5 categories of disorder, scaled to match IQ scores (M=100, SD=15); 2) Narrower symptoms of Internalizing (anxiety and depression) and Attention-deficit/Hyperactivity Disorder, both z-scored (M=0, SD=1); and 3) Differences in the lead-linked personality traits of Neuroticism and Conscientiousness (M=0, SD=1).

Results

By 2015, the US population had gained 602 million General Psychopathology factor points because of childhood lead exposure, reflecting a 0.126-standard-deviation increase in overall liability to mental illness in the population and an estimated 151 million excess mental disorders attributable to lead exposure. Investigation of specific disorder-domain symptoms identified a 0.635-standard-deviation increase in population-level Internalizing symptoms and a 0.424-standard-deviation increase in ADHD symptoms. Population-level Neuroticism increased by 0.141 standard deviations and Conscientiousness decreased by 0.198 standard deviations. Lead-associated mental health and personality differences were most pronounced for cohorts born from 1966 through 1986 (Generation X) and peaking in 1966-1970 with the peak use of lead in gasoline.

Conclusions and Relevance

A significant burden of mental illness symptomatology and disadvantageous personality differences can be attributable to US children’s exposure to lead over the past century. The contribution of legacy lead exposures to population health and disease may be much larger than previously assumed.

Environmental factors

Residential Mobility Following the Flint Water Crisis: Differences by Race, Socioeconomic Status, and Environmental Vulnerability Samantha Gailey* Samantha Gailey, Richard Casey Sadler,

State officials’ unawareness of lead exposure at the outset of the Flint Water Crisis (FWC) is a prime example of the consequences of poorly defining the scope of an exposed population. Adverse impacts of lead exposure and the broader FWC continue to emerge nearly a decade after the water switch (from Detroit Water to the Flint River) that initiated the crisis. Increased residential mobility during and after the FWC necessitates a lens that can accurately capture movement across place and time, in order to identify and provide support for exposed populations. Here we establish the methodology for capturing residential histories of enrollees in the Flint Registry, a CDC-funded surveillance and referral registry. We also investigate residential selection and mobility by examining which, if any, individual and neighborhood characteristics predicted relocation following the FWC. We geocoded every enrollee-address dyad and linked enrollee IDs (n=16062) in a geodatabase to identify 5-year residential histories (from Apr ‘14–Apr ‘19). We use longitudinal and spatial analyses to test associations between baseline individual and neighborhood characteristics and subsequent residential mobility outcomes. In our sample, 80.6% never moved, 10.5% moved within Flint, and 8.9% moved outside Flint. Descriptive analyses show strong racial divergence in patterns of mobility over time. In the immediate aftermath of the water switch (i.e., before 2016, when the water source is returned to Detroit Water) a far greater proportion of white (relative to Black and Hispanic) Flint residents moved to communities outside of Flint. We also observe that census tracts closer to downtown (higher income areas) exhibited higher rates of mobility. We hypothesize that longitudinal regression analyses will further support the inference that residents who are white, more educated, and lived in higher-quality neighborhoods at baseline were more likely to move immediately following the FWC. If our hypotheses are confirmed, results would indicate that residents with greater resources were able to mitigate their lead exposure by moving out of Flint, reinforcing environmental and health inequities along class and race lines.

Environmental factors

Why are we still not lead free? Community based system dynamics modeling to address lead exposure in Cleveland, Ohio Callie Ogland-Hand* Callie Ogland-Hand, Tanis Quach, Michael Espay II, Leandrow Thomas, Bryan Hagar, Jelani Dabney, Robin Brown, Peter Hovmand,

Background: Exposure to lead causes negative neurological, cardiovascular, and respiratory health effects, as well as increased criminal involvement. Children are at particular risk, and the impacts of lead last through the lifespan. Lead exposure is not random. Due to structural racism and historical housing law discrimination, lead poisoning is concentrated in predominantly Black cities and neighborhoods, such as Cleveland, Ohio. Cleveland is at the center of the lead epidemic, with rates of lead poisoning 4 times the national average.

Objective: Our goal was to engage with community stakeholders to (1) develop a shared understanding of lead in Cleveland and (2) illustrate mechanisms to decrease lead exposure.

Methods: We piloted a half-day community based system dynamics workshop in collaboration with community organizations focused on lead exposure using structured group model building scripts (“Hopes and Fears”, “Graphs over Time”, “Connection Circles”, and “Action Ideas”). These were used to create an exploratory simulation model highlighting health inequities of lead poisoning and potential leverage points to advance regional health equity.

Results: Causal feedback relationships were found between environmental justice, remediation, testing, and efforts for change. Five action idea themes were identified: financial resources; programs; policy; education and outreach; and, changing the narrative. Broadly, the approach demonstrated the feasibility of engaging with community organizations in support of city public health department efforts to address racism as a public health crisis.

Conclusion: Group model building provides a method to engage with community stakeholders and illustrate the structures and mechanisms of lead exposure. Future work will continue to engage communities and local governments to accelerate community based implementation strategies for scaling and sustaining testing, mitigation, and abatement efforts to advance environmental justice.

Environmental factors

Residential mobility and exposure to extreme heat in North Carolina Miyuki Hino* Miyuki Hino, Jihoon Jung,

Extreme heat is the leading weather-related cause of death in the United States, and climate change threatens to further escalate heat-related morbidity and mortality. Residential migration shapes heat health impacts by determining who is exposed to changing temperatures. Here, we conduct a comprehensive analysis examining the impact of migration on changes in population exposure to extreme heat using high-resolution empirical data, enabling us to capture the impacts of short-distance moves that are often missed in other secondary data sources. We combine address histories for 16M individuals ever linked to a North Carolina address with temperature records to track heat exposure across locations and over time. We find that residential migration has substantially increased population heat exposure relative to a counterfactual scenario where people remain in place from 1990-2019. Moves at retirement age often lead to increases in temperature exposure, while moves at earlier life stages (family formation and labor force entry) do not. Given known health vulnerabilities associated with older ages, this result is especially concerning. Absent meaningful shifts in migration patterns, residential mobility will exacerbate the impacts of climate change on population heat exposure by shifting more people into hotter places. Our work focuses principally on exposure, and additional research examining drivers of social vulnerability, such as wealth, race, and social networks that promote resilience, is needed to better assess the trajectories of future heat health impacts. Greater insight into how migration shapes exposures for different sub-populations, today and in the future, can enable improved assessments of climate risk and better preparation in receiving areas.

Environmental factors

Association of Lead Exposure and COVID-19 Mortality at the County Level: Environmental Racism and Pandemic Preparedness Caitlin McMurtry* Caitlin McMurtry, Nia Johnson,

Context: Black Americans are disproportionately likely to be exposed to lead, and lead exposure among adults is associated with adverse health conditions that place one at higher risk of severe illness and death from COVID-19 and influenza. Thus, chronic lead exposure may exacerbate death rates and health disparities during disease outbreaks. Using elevated blood lead levels (EBLL) among children as a proxy for lead exposure in a community, we aimed to (1) examine the association between EBLL and COVID-19 death rates at the county level, and (2) quantify how a county's racial composition affects this relationship.

Methods: We estimated the association between confirmed EBLL among children and COVID-19 mortality rates in an ecological study design using negative binomial generalized linear mixed models with heteroscedasticity-consistent errors clustered at the state level. Deaths due to COVID-19 were obtained from the Johns Hopkins Coronavirus Resource Center from February 29, 2020 through January 31, 2021 in 1,157 counties across 20 states, including Washington, D.C. County-level rates of confirmed EBLL per 100 testing-eligible children in the most recent pre-pandemic year reported by states (2014-2019) measured exposure. We included covariates of county-level demographic characteristics to account for cofounding factors, and marginal effects analyses were used to simulate changes in a county's racial composition.

Findings: Every additional confirmed case of EBLL per 100 testing-eligible children was associated with an increase in the county-level COVID-19 mortality rate (aIRR: 1.07, 95% CI: 1.01 to 1.14). Changing the proportion of White residents in a county from 10% to 90% decreased predicted mortality by 228%, holding all other covariates at their means ($p<0.001$).

Conclusions: Lead exposure may set communities up to fail during disease outbreaks such as COVID-19 and influenza, heightening the importance of high-quality lead surveillance and investment in remediation.

Aging

Nationwide Trends in Medical Comorbidity Burden of Patients Newly Diagnosed with Dementia, 2015-2021. Jay Lusk* Jay Lusk, Cassie Ford, Beau Blass, Kim Johnson, Amy Clark, Samir Soneji, Richard O'Brien, Emily O'Brien, Bradley Hammill,

Background: Medical comorbidity burden has a major impact on care for patients with dementia and has major impacts on quality of life. No nationwide study has evaluated trends in medical comorbidity burden of patients with a new diagnosis of dementia.
Methods: We studied 100% of nationwide Medicare claims from 2014-2021 and evaluated the prevalence of medical comorbidities among patients with new diagnoses of dementia. Medical comorbidities were ascertained through searching inpatient and outpatient claims for 1 year prior to dementia diagnosis. We used validated international classification of diseases (ICD) code algorithms to identify both dementia diagnoses and medical comorbidities.
Results: A total of 5,721,711 patients with incident dementia were included in the study. Anxiety disorders were much more common among patients diagnosed in 2021 (29.8%) compared to patients diagnosed in 2015 (23.8%). Depression was also more common among patients diagnosed in 2021 (33.8%) versus 2015 (31.8%). Hypertension remained very common (85.7% in 2021 vs 86.6% in 2015). There was a major decrease in patients with prior history of psychosis (17.8% in 2015 vs 8.1% in 2021). There were modest increases in the rates of comorbid cardiovascular disease.

Conclusions: In a national database of Medicare claims, there were substantial changes from 2015-2021 in comorbidity burden among patients newly diagnosed with dementia. There was a dramatic decrease in comorbid psychosis which could be attributable to Medicare initiatives to reduce the inappropriate use of antipsychotic medications among patients with dementia. Our results have implications for health system performance and risk adjustment, given an overall increase in comorbidity burden across many disease states from 2015-2021.

Aging

Trends in Incidence and Prevalence of Dementia Among United States Medicare Beneficiaries, 2014-2021, by Race, Sex, and Neighborhood Socioeconomic Status Jay Lusk* Jay Lusk, Beau Blass, Cassie Ford, Kim Johnson, Amy Clark, Samir Soneji, Richard O'Brien, Bradley Hammill, Emily O'Brien,

Background: Understanding trends in the incidence and prevalence of dementia as determined by routinely collected administrative claims data can provide critical context for clinicians and policymakers. Furthermore, understanding disparities in incidence and prevalence in the population at large can help to ameliorate biases from inequitable representation in survey and cohort designs.

Method: We performed a retrospective study of 100% of Medicare claims from 2013-2021 (2013 being reserved as a look-back year). We defined incident dementia diagnoses in each year among patients without a known history of dementia based on validated international classification of diseases (ICD) algorithms. We defined prevalent dementia as patients with any prior history of dementia in each year. We stratified incidence and prevalence by race (classified as Black, non-Hispanic, Other race/ethnicity, and White, non-Hispanic), sex, and neighborhood socioeconomic status, measured by the Area Deprivation Index, which summarizes socioeconomic conditions at the census block group level (roughly 600-1000 people).

Results: From 2014-2021, there were 5,721,711 incident cases of dementia in the United States. The average age at diagnosis was 80.5 years. Patients were 57.7% female, 86.6% White and 7.8% Black, 15.8% dually eligible for Medicare and Medicaid, and 41.5% from the South region. Incidence rates fell from 34.71 per 1,000 person-years to 26.56 per 1,000 person-years in 2021. Prevalence increased from 107.55 to 115.44 cases per 1,000 persons from 2015-2021. Prevalence of dementia was higher among Female and Black beneficiaries as well as beneficiaries from the most socioeconomically deprived neighborhoods.

Conclusion: We found declining dementia incidence but increasing prevalence in a sample that includes the vast majority of older adults in the United States. Differences in dementia incidence by sex, race/ethnicity, and neighborhood socioeconomic status remained notable in 2021.

Aging

Menopausal Symptoms and the Impact of Perceived Stress and Everyday Discrimination Among Racial/Ethnic Groups KJ Davidson-Turner* KJ Davidson-Turner,

Menopause is a key transition period during the aging process in which women may experience a variety of negative health issues, such as hot flashes, mood changes, and trouble sleeping. Further, studies have shown that the number and severity of health issues associated with menopause tends to vary by race/ethnicity. A key factor that may be impacting the occurrence and severity of menopausal symptoms is stress. This paper relies on data from the Study of Women’s Health Across the Nation (SWAN) to examine whether perceived stress and experiences of everyday discrimination impact different health issues related to menopause and whether these associations vary by race/ethnicity. Currently, menopause-related health issues that are included in the study are: vasomotor symptoms (hot flashes and night sweats), mood changes, depression, breast pain, and comorbidities (uterine fibroids). Preliminary results show that discrimination experiences, and to a lesser degree perceived stress, are associated with a higher likelihood of experiencing severe and frequent menopausal symptoms. Consistent with literature showing racial/ethnic differences in the exposure of discrimination and stress, the association between discrimination and perceived stress vary slightly when looking at the impact among Black women and White women separately. Currently, we only used 2010 data but future steps will utilize the longitudinal SWAN data from 1996 – 2010 to examine whether exposure to everyday discrimination and perceived stress at different times in a woman’s life (puberty, peri-menopause, menopause) have different impacts on symptoms during menopause. In addition, other measures of negative health problems associated with menopause will be included (ex. depression, anxiety, sleep disturbances, and other comorbidities). Given that early menopause has been linked to greater mortality risk and that negative symptoms during menopause have been associated with worse health across the aging process, understanding how stress impacts menopause at different times in a woman’s life can provide important insights into gendered health inequities.

Aging

A social care intervention for dementia caregivers reduces emergency department utilization Stacy Lindau* Jennifer Makelarski, Stacy Tessler Lindau, Victoria A. Winslow, Kristen E. Wroblewski, Emily Abramsohn, Elbert S. Huang,

CommunityRx-Dementia (CRxD) is a scalable, IT-based resource referral intervention delivered at the point of care that provides dementia caregivers with information about community resources for common social and caregiving needs. We hypothesized that caregivers who received CRx-D would have lower emergency care and hospitalization in the 12 months following baseline compared to caregivers who received usual care.

Dementia caregivers (N=343) recruited 12/20-10/22 to a single-blind trial were randomized to receive usual care or CRxD. The intervention included: (1) brief education about common caregiver needs, (2) a list of vetted local resources, and (3) connection to a resource navigator and online resource finder. Caregivers were asked to recall the number of emergency department (ED) visits and hospitalizations they had experienced in the last 12 months at baseline and at 12-month follow-up. Negative binomial regression models were fit with treatment group and baseline utilization as predictors. Incidence rate ratios (IRR) and corresponding 95% CIs were calculated.

Most caregivers identified as female (78%), Black (81%), had household income >$50k/year (64%). During the 12 months following baseline, 25% of caregivers had ≥1 ED visit (intervention: 22% ; control: 28%) and 14% had ≥1 hospitalization (intervention: 12% ; control: 16%). ED utilization was significantly lower among participants in the intervention arm compared to participants in the control arm (intervention ED visit rate=0.3, control rate=0.5; aIRR: 0.6, 95% CI: 0.3, 0.9, p=0.03). The rate of hospitalization was not statistically different by treatment arm (intervention hospitalization rate =0.1, control=0.2; aIRR: 0.7, 95% CI: 0.3, 1.2, p=0.19).

A social care intervention delivered to caregivers of people with dementia reduces ED utilization. Integration of social with medical care for caregivers may be sustainable by reducing acute care utilization.

Aging

Persistent Pathogens Accelerate Immune and Biological Aging at the Population Level

Jennifer Momkus* Jennifer Momkus, Kathleen Mullan Harris, Y. Claire Yang, Chantel L. Martin, Jessie K. Edwards, Allison E. Aiello,

Intro: Research indicates exposure, infection, and immune response to common pathogens such as cytomegalovirus (CMV), herpes simplex virus type 1 (HSV-1), Epstein-Barr Virus (EBV), and Helicobacter pylori (H. Pylori) contribute to accelerated aging in older populations. Yet, little is known about these relationships in younger adult populations.

Methods: Data come from Waves IV (ages 24-33)-V (ages 33-44) of the National Longitudinal Study of Adolescent to Adult Health. In Wave IV, dried blood spots (N=5,019) were tested for EBV, CMV, HSV-1, and H. Pylroi IgG antibodies. In Wave V, venous blood samples (N=4,940) were assayed for DNA methylation (DNAm). DNAm was used to estimate immune cell distributions and second-generation epigenetic clocks (PhenoAge, GrimAge. DunedinPACE, and Zhang2019). Three immune cell ratios were created: CD4 memory:naïve, CD8 memory:naïve, and CD8:CD4. Epigenetic Age Acceleration (EAA) was calculated as age adjusted residuals from each clock in relation to chronological age. Survey-weighted linear regression was used to assess the association between infection status and antibody concentration with cell ratios and EAA. Covariates included chronological age, sex, immigrant generation, early life neighborhood disadvantage, education, and occupational prestige.

Results: CMV seropositivity and IgG concentration were positively associated with all immune cell ratios and EAA based on GrimAge, DunedinPACE, and Zhang2019. For example, GrimAge EAA was 0.71 units higher among those who were seropositive vs. seronegative (95%CI: 0.05, 1.37). Results for other infections were less consistent, but EBV and H. Pylori were associated with some outcomes.

Conclusions: CMV infection and immune response was consistently associated with measures of a functionally older immune system and accelerated biological aging in early midlife U.S. adults. Studying aging biomarkers prior to old age may identify opportunities for earlier, more effective intervention.

Methodological approaches to studying public health

Does choice of neighborhood disadvantage index matter? An application with preterm birth disparities Sarah Haight* Sarah Haight, Kristen Cowan, Jessie Edwards, Thomas Luben, Chantel Martin,

Background: Epidemiologists often investigate the impacts of neighborhood disadvantage (ND) on health outcomes using indices created from publicly available data. However, it is not well known how choice of ND index can impact results. We (1) determined the most used ND indices in recent epidemiological research and (2) investigated how choice of ND index impacts the observed racial disparity in the relationship between ND and preterm birth (PTB).

Methods: We conducted a systematic scan of abstracts from 2020-2023 in 5 major epidemiology journals and conferences to determine the most used ND indices and assigned them to birth records for singleton live births with no birth defects to non-Hispanic (NH) Black and NH white birthing parents in North Carolina from 2016-2018. Linear binomial regression was used to calculate risk differences (RD) for PTB for a 1-standard deviation (SD) increase in each ND index, stratified by race.

Results: Our sample included 263,066 births (30.3% NH Black; 69.7% NH white). PTB was higher for NH Black than NH white deliveries (11.0% NH Black; 7.1% NH white). The most common ND indices were Neighborhood Deprivation Index (NDI), racial and economic Index of Concentration at the Extremes (ICE), Social Vulnerability Index (SVI), and Area Deprivation Index (ADI). Overall, the indices showed an increased risk of 13-15 more PTB per 1000 live births for a 1-SD increase in ND. RDs were higher for NH white (RD range: 8.2 – 11.2) compared to NH Black birthing parents (RD range: 8.1 – 9.0) for the NDI, ICE, SVI and ADI. As ND decreased, the PTB risk disparity between NH Black and NH white birthing parents widened with the NDI and ADI, indicating that the potential benefits of living in advantaged neighborhoods may not be equally shared; this gap was not observed with ICE or SVI.

Conclusions: The relationship between ND and health outcomes may vary depending on the index used, indicating the need for thoughtful consideration in their selection.

Methodological approaches to studying public health

Implications of changing census tract boundaries in the longitudinal examination of racial residential segregation and cognitive outcomes of older adults Tongtan Chantarat* Tongtan Chantarat, Jenny Wagner, David Van Riper, Michelle Ko,

Exposure to racial residential segregation throughout a life course is a crucial determinant of cognitive outcomes of older adults in the US. Geospatial measures calculated from population-level estimates from the US Census Bureau are commonly used to measure residential segregation. The Census Bureau redraws census tract boundaries before each Decennial Census to reflect neighborhood and population changes. These circumstances pose substantial challenges to measuring residential segregation consistently over time, difficulty in attributing the health effects from longitudinal analyses to changes in the exposure vs. boundaries, and potentially impacting the validity of study findings. Our study will quantify the extent to which changes in census tract boundaries from 1990 to 2020 affect the analyses of the relationship between midlife exposure to residential segregation and cognitive outcomes of Black and white participants in the Health and Retirement Study. We will measure county-level racial segregation with the dissimilarity, interaction, and isolation indexes. These indexes will be calculated in two ways: (1) using the population estimates based on the “source boundaries” drawn in 1990, 2000, 2010, and 2020, and (2) using the population estimates based on the 2010-harmonized boundaries from the NHGIS Time Series and the Longitudinal Tract Database . Using linear mixed-effects models, we will determine whether the association between longitudinal exposure to residential segregation and rates of memory decline from ~1990 to 2020 differ by whether the source-boundaries vs. harmonized-boundaries measures are used. Differences in association estimates will suggest the potential impact of boundary changes and the need for boundary harmonization from earlier censuses to accurately capture the dynamic of residential segregation and the longitudinal relationship with cognitive outcomes of older adults.

Methodological approaches to studying public health

Age-Period-Cohort Trends in Biological Aging in the U.S. population, 1999-2018 Gloria Graf* Gloria Graf,

Importance: Life expectancy in the United States has stagnated over the past decade after two centuries of steady increase. This decline was initially largely attributed to “deaths of despair” among White men in middle adulthood. The impact of the causes of excess deaths driving life expectancy trends on health trajectories among living people, especially minoritized groups, is unknown.

Objective: To characterize patterns of biological aging and aging health equity in the US population over the first two decades of the 21st century.

Methods: We employed a synthetic cohort approach to age-period-cohort (APC) analysis using repeated cross-sectional data from all participants who provided blood-chemistry data in the 1999-2018 waves of NHANES (n=29,487). Biological aging was quantified using the PhenoAge algorithm, with biological-age advancements calculated as the difference between PhenoAge and chronological age. We conducted age-period-cohort (APC) analysis using Bayesian Hierarchical APC models. Sensitivity analyses were conducted used two alternative measures of biological aging (Klemera-Doubal Biological Age and Homeostatic Dysregulation) and two alternative approaches to APC decomposition (Intrinsic Estimator and Median Polish procedure).

Results: Overall, participants in continuous NHANES were biologically younger than participants in the NHANES III training sample (1988-1994). However, mean biological-age advancement rose over the study period 1999-2018 across all race-sex subgroups; formal APC decomposition analysis revealed significant period increases in biological aging over the study period, with population aging trajectories reverting back to early-1990s levels by 2018. Effects were similar across all race-sex subgroups and in sensitivity analyses.

Conclusions and Relevance: In light of broad period trends showing accelerated biological aging across population groups in the United States, greater attention to the non-fatal impacts of the Great Recession and opioid epidemic may be warranted, especially among minoritized population groups who may experience substantial but non-fatal health decrements stemming from these exposures.

Methodological approaches to studying public health

Measurement Error in Citizenship and Estimates of Health Insurance Coverage among Immigrants: A Bayesian Approach Claire Altman* Claire Altman, James Bachmeier, Scott Holan, Paul Parker,

For nearly a decade, immigration and health scholars have been examining the impact of the Affordable Care Act on health insurance coverage rates among an increasingly diverse foreign-born population. However, to date efforts to evaluate the impact of the ACA have been hampered by measurement error and data limitations which likely result in biased estimates. In this paper, we propose the application of a novel statistical method to correct for measurement error in foreign born citizenship reporting. Using the 2005-2008 and 2018-2021 Survey of Income and Program Participation (SIPP), we apply a weighted pseudo-likelihood mixture of categorical distributions to estimate the regression relationship and the measurement error rates simultaneously, while adjusting for potential bias due to the sample design and measurement error. Although a gap health insurance coverage between citizens and non-citizens persists, the gap diminished from the period before the ACA compared to after the ACA.

Methodological approaches to studying public health

Understanding the Race and Gender Differences in Healthy Life Expectancy in Washington State Leah Wainman* Leah Wainman, Fan Xiong,

Understanding the Race and Gender Differences in Healthy Life Expectancy in Washington State

Background: The oldest and simplest measure of population health is the rate of mortality. Healthy life expectancy is a calculated measure that uses self-reported health and mortality data to assess the average number of years a person can expect to live in good health.

Methods: Healthy life expectancy (HLE) was calculated using abridged Sullivan life tables for all respondents and for males and females separately, by 5-year age bands. Data sources included three datasets: 2022 American Community Survey 5-year summary reports, 2022 CDC Behavioral Risk Factor Surveillance System (BRFSS) survey, and 2022 Mortality rates – stratified by five-year age bands, geographic region, occupation, race & ethnicity. Regression methods were used to understand the drivers of health by age, race, ethnicity, and gender.

Results: In 2022 the healthy life expectancy at birth in Washington was 68.9 (68.42, 69.55), while the overall life expectancy at birth in Washington was 78.6 (78.8, 79.04) years. Disaggregating the data by race, ethnicity, and gender revealed disparities among these subgroups. HLE was associated with multiple health outcomes.

Key Points: HLE could be used as a key outcome measure in assessing the extent to which certain groups experience health differently compared across and within a community. Monitoring HLE at the population level experience disparities in health outcomes can help public health and healthcare professionals assess the extent to which health is improving and disparities are narrowing for priority populations.

Biomarkers or biological pathways

Using Inflammation Biomarkers to Understand Why Women Live Longer but are in Poorer Health than Men KJ Davidson-Turner* KJ Davidson-Turner, Mateo Farina, Mark Hayward,

Women live longer than men but are in poorer health, which has long puzzled population health researchers. Chronic inflammation and its association with age-related health outcomes may help us understand why. Chronic inflammation has long been understood as a key biological risk and potential pathway for several age-related health risks in later life. However, its association across aging outcomes may not be uniform. Using the 2016 Venous Blood Subsample (VBS) of Health and Retirement Study, a nationally representative of adults 56+ in the United States, we examine gender differences in inflammation risk for predicting 6-year mortality and functional limitations (motor function, IADLs, and ADLs), as well as potential explanatory factors that differentiate the risk across groups, such as health behaviors (smoking, drinking and exercise) and psychosocial stress. Inflammation is measured by summing high-risk quartiles for 5 cytokines (IL-6, IL-10, IL-1RA, TNFR1, and TGF-Beta). Preliminary findings indicate that inflammation is more predictive of 6-year mortality among men but more predictive of disability (IADL and ADL) for women. We did not observe gender differences in inflammation risk for fine motor function. Additionally, preliminary evidence suggests that the gender differences in the association between inflammation risk and 6-year mortality may in part be driven by health behaviors, especially lifetime smoking. These results indicate that inflammation pathways play a critical role in age-related health across groups but that the translation of inflammation risk to specific health outcomes may be embedded within larger gendered social contexts.

Non-health institutions (business, political, education systems)

Occupational Segregation and Health Equity: A Systematic Review Amel Omari* Amel Omari, Kaori Fujishiro, Candice Johnson, Franziska Kössler,

Background. Work is an important modifiable driver of health inequities, but its implications for life expectancy and other health outcomes are understudied outside of the occupational health literature. Occupational segregation (uneven demographic distributions across occupations) is a mechanism by which work can cause health inequities. While economists and others have studied occupational segregation's importance for the gender pay gap and other non-health outcomes, studies on occupational segregation and health are sparse. Following PRISMA guidelines, we conducted a systematic review of the occupational segregation literature to identify measurement methods and existing knowledge on its association with worker health and disparities.

Methods. Nine databases were searched with relevant key terms for articles published 2000-2023. Two authors independently reviewed abstracts to identify quantitative research that included measurement of occupational segregation. Full texts of relevant studies were extracted to identify methods used to measure occupational segregation, investigations of occupational segregation and worker health, and sociodemographic axes (e.g., race, gender, nativity, etc.) considered.

Preliminary Results. The search returned 538 studies that were reviewed by the study team, yielding 262 full-text papers included in the review. Studies primarily focused on occupational segregation by gender in the context of non-health outcomes. The magnitude of segregation was measured using a variety of informal (descriptive statistics) and formal (e.g., dissimilarity indices) methods. The association between occupational segregation and U.S. worker health has been investigated in 13 articles.

Conclusions. Although few studies modeled occupational segregation's association with worker health or population health equity, this review identifies several methodological approaches future health research can use to investigate these understudied associations.

Gender

Occupational Sex Segregation and Women’s and Men’s Cardiometabolic Outcomes Jessie Himmelstern* Jessie Himmelstern, Rob Warren, Ryan Demmer,

In this article, we focus on health inequalities between women and men that stem from their relative positions in the labor market and the rewards and status associated with those positions. Despite increases in women’s labor force participation, educational qualifications, and job tenure, women are overrepresented in lower paying, less secure, and lower-skilled occupations. Scholars argue that the devaluation of women’s work and the elevation of men’s work can be attributed to the reproduction of hegemonic masculinity in workplace structures and practices. Such inequalities are reinforced through differences in material resources, health behaviors, and interpersonal interactions across the labor market. These differences have tangible implications. Individuals who lack access to material resources, such as high wages, are more likely to delay costly medical care. Hegemonic masculinity encourages men to engage in risky health behaviors as a way to conform to expectations in men dominant occupations or to neutralize their deviance when working in a women dominant occupation. Furthermore, individuals’ experience with discrimination and harassment due to their minority status can alter HPA axis and sympathetic nervous system activity. Overall, variations in individuals’ gender context at work has implications for their cardiometabolic disease risk. To gain a comprehensive understanding of how disparities manifest into health differences, we focus our attention on individuals in gender-typical or atypical occupations in early adulthood. We use data from the National Longitudinal Study of Adolescent to Adult Health to examine how cardiometabolic biomarkers and self-reported disease differ based on the gender composition and economic resources of women and men’s occupation. Our analysis centers the intersection of economic and gender processes in the reproduction of health disparities.

Gender

Interspousal Inequality and Health Among Heterosexual and Same-Gender Couples Patricia Homan* Patricia Homan, Jessica Noblitt, Miles Taylor, Claire Kamp Dush,

Recent research has shown that power and resource inequality within heterosexual marriages is associated with worse health for the disadvantaged partner (most commonly the woman). Within same-gender marriages, however, far less is known about how much interspousal inequality exists and how it shapes health. In this study we use data from Work and Family Life Study (2022-2023), the first nationally representative study of same-gender marriages, to examine interspousal inequality and health among heterosexual men (n=427) and women (n=356), gay men (n=186), and lesbian women (n=103). We investigate the amount of interspousal inequality in earnings and in housework among the different types of couples, and whether inequality is associated with mental health problems and poor self-rated health. For inequality in earnings, result show that heterosexual couples have very high levels of interspousal inequality, with husbands earning much more than wives on average; whereas, in gay and lesbian couples there is very little inequality and the average gap between spouses’ incomes does not significantly differ from zero. A smaller earning advantage relative to their wives is associated with poor self-rated health for heterosexual men; no relationship is found between earnings inequality and health among other groups. For housework inequality, heterosexual men do significantly less housework than their partners and less than all other groups. Among heterosexual men, an increase in the share of housework performed relative to their spouse is associated with worse mental and self-rated health. Taken together, these results indicate that same gender marriages are more equitable than heterosexual marriages, and that heterosexual men are the only group which experiences a health premium due to existing configurations of interspousal inequality.

Policy

Influence of Sweetened Beverage Taxes on Calories Purchased at a Large National Fast Food Chain Brian Elbel* Brian Elbel, Pasquale Rummo, Juan Echenique, Erilia Wu,

Taxes on sweetened beverages are one of the most promising solutions to reducing population-wide consumption of these beverages. Several jurisdictions have implemented taxes, though they particularly lack data on calories purchased at fast food restaurants and studies that can examine multiple localities together.

We used six years of transaction-level sales data (2015-2020) from 60 Taco Bell restaurants where taxes were implemented (Albany, CA; Cook County, IL; Oakland, CA; Philadelphia, PA; Seattle, WA) and 60 matched synthetic control units, with linked calorie data. The final sample size was 2,860 restaurant-month observations. Using a difference-in-differences approach, we compared differences in beverage calories and calories from combo meals (which include beverages) per transaction between treatment and comparison restaurants in the year before compared to the first and second year after tax implementation. Our earlier work shows that individually purchased beverage prices only changed due to these taxes in Cook County and Philadelphia, with very limited evidence of changes in combo meal prices (which include beverages). Beverage calories purchased did not appreciably change except for Oakland, which decreased by 20 calories. Combo meal calories decreased in some locations from 15 to 52 calories, evidence of a change in price. Calorie changes could have occurred due to sugary beverage taxes through combo meals, though results varied by location, and the exact mechanism is unclear.

Health care/services

Medicare Advantage's Role in Accelerating the Expansion of "Big Med": 'It's Not Personal, It's Strictly Business' Rick Mayes* Rick Mayes, Tom Oliver, Soleil Shah,

Objective: This paper traces the evolution of the Medicare Advantage (MA) program and delineates how its growth has affected both Traditional Medicare (TM) and the broader U.S. health care system. **Data Sources, Study Setting & Study Design**: Based on stakeholder interviews, primary data sources, and an extensive review and synthesis of the literature, the authors provide an analysis of: (1) how MA went from a "policy disappointment" to covering more than half of all Medicare beneficiaries, (2) the program's major trends, policy changes, and expanded benefits—such as prescription drugs, a cap on out-of-pocket costs, and eyeglasses and dental care—that have led to MA's massive enrolment increase, particularly for middle- and lower-income beneficiaries, (3) how MA's emerging predominance has fed the increased integration, consolidation and corporatization of U.S. health care, and (4) the tradeoffs, consequences and implications of the program's historic growth.

Principal Findings and Conclusions: MA partly represents a gamble on the ability of large health care organizations and pay-for-performance schemes to improve the overall quality of patient care and (someday) save the federal government money through competition in the private sector. MA's role in fueling consolidation to bigger health care systems that can provide an entire continuum of care for a prospective and capitated Medicare payment has been substantial. It raises serious concerns over total Medicare costs and increased health care prices for all payers, adequate and appropriate use of medical services (quality of care), the fairness and efficacy of risk adjustment, patients' access to providers and their ability to switch back to TM, provider autonomy and morale, and decreased overall competition with the potential for monopolistic or oligopolistic exploitation of market share by ever larger health care systems operating under alternative payment models. As such, MA has been both a change agent and a learning laboratory.

Policy

“The market was changing so rapidly for rental prices, and they didn’t want to take Section 8”: Experiences of Leasing Up with Rental Assistance Vouchers Whitney Denary* Whitney Denary, Danya Keene, Penelope Schlesinger,

Amidst the multifaceted factors contributing to declining life expectancy in the US, housing instability emerges as a critical determinant, with challenges in accessing affordable housing exacerbating health disparities among vulnerable populations. Local and federal housing authorities aim to alleviate the lack of affordable housing by providing rental subsidies.

One such program is the Housing Choice Vouchers (HCV), also known as Section 8, which provides rental subsidies for low-income households to secure housing with private market landlords. While these programs have been shown to have positive impacts on tenants’ health and well-being, significant barriers hinder voucher utilization. In areas facing tight rental markets, using a voucher to find housing can be extremely challenging. Connecticut has seen an alarming 20% increase since 2021, with rental vacancies at an all-time low of 3.3%. This study explores the narratives of twelve individuals who successfully reached the top of the HCV waitlist and attempted to use their vouchers in the private housing market. These semi-structured interviews are part of Project ReSIDe (Rental Subsidies to Improve Diabetes, 2021-2024), an NIH-funded, mixed-methods study investigating the health impacts of acquiring rental assistance for individuals living with diabetes in Connecticut. Our findings explore the challenges faced by participants in their pursuit of leasing up with an HCV in a rapidly changing rental market. The key challenges discussed include (1) navigating communication roadblocks with the housing authority, (2) market prices being higher than the Section 8 budget, and (3) encountering source of income stigma from private landlords.

Understanding the challenges of housing affordability and rental assistance utilization is crucial for policymakers seeking to address housing stability as an avenue contributing to the declining life expectancy in the US.

Chronic disease

A Qualitative Study of How Veterans Integrate Cannabis within Chronic Pain Management

Riley Wegryn-Jones* Riley Wegryn-Jones, Christine Yu, Bhaavna Yalavarthi, Lillian Xiao, Johari Summerville, Sia Rajgarhia, Vivian Kurtz, Samantha Dell'Imperio, Amy Bohnert, Kevin Boehnke, Rachel Bergmans,

Background: Chronic pain is disproportionately common among U.S. Veterans and increases the risk of morbidity and mortality. Due to Veterans' well-founded dissatisfaction with conventional pain care, it is increasingly important to investigate novel treatment approaches like medical cannabis. Cannabis is already used by many Veterans to manage their pain symptoms despite limited evidence. Qualitative research that highlights Veterans' perspectives on pain and cannabis is a critical step in understanding the potential of cannabis to treat chronic pain. Our study aims to illustrate how Veterans integrate cannabis within chronic pain management.

Methods: We used an interpretive description design and conducted semi-structured interviews with Michigan Veterans who had chronic pain, were aged 21+ years, and either used or were planning to use cannabis (n=32). Inductive thematic analysis is ongoing and theme development focuses on how Veterans integrate cannabis in chronic pain management.

Results: Participants were 81% male, 78% non-Hispanic White and aged 26-76 years. We identified 4 preliminary themes: 1) Value for health and wellbeing, where participants described the benefits of cannabis and concerns about adverse effects; 2) Navigating the evidence base, where participants described developing an often self-guided treatment plan involving cannabis; 3) Accessibility and safety, where participants talked about sourcing cannabis despite cost barriers and limited regulation; and 4) Stigma and policy, where cannabis users shared their responses to varying degrees of retaliation and acceptance.

Conclusions: Findings illuminate the potential value of cannabis for Veterans with chronic pain, while also highlighting numerous obstacles related to its use. Future research should engage and include Veteran perspectives to collectively work toward a better understanding of cannabis as a pain treatment option.

Policy

Increased food insufficiency after COVID-era SNAP emergency allotments expired: A quasi-experimental study Rita Hamad* Whitney Wells, Kaitlyn Jackson, Cindy Leung, Rita Hamad,

In response to economic distress and food insecurity during the COVID-19 pandemic, the US Congress expanded the Supplemental Nutrition Assistance Program (SNAP) by introducing Emergency Allotments (EAs) to increase monthly benefits starting in March 2020. In March 2023, EAs expired in the 35 states/territories still providing them. We provide some of the first evidence of the impacts of this loss of nutrition support—in some cases over $250/month—for economically disadvantaged households.

We examined the effects of SNAP EA expiration on food insufficiency, mental health, and financial well-being, using data from the US Census Household Pulse Survey. In difference-in-differences analyses, we compared pre-post differences among SNAP participants to pre-post differences among SNAP-eligible non-participants. We also examined subgroup effects by race/ethnicity and income.

The SNAP EA expiration led to a substantial increase in food insufficiency (8.4 percentage points; 95%CI: 5.5, 11.3). Black SNAP participants experienced a greater increase in anxiety symptoms (0.47; 95%CI: 0.13, 0.80) compared with White SNAP participants (-0.06; 95%CI: -0.25, -0.13) (p=0.01).

This study has implications for ongoing policymaking with respect to US nutrition and safety net programs to support vulnerable families, especially amidst inflated food prices.

Health behaviors

The Influence of State Policies, Area Level Deprivation, and Relative Wealth on Delay Discounting Outcomes in the Adolescent Brain Cognitive Development Study Richard Sadler* Richard Sadler, Julia Felton, Jill Rabinowitz, Justin Strickland, JeeWon Cheong, Bryant Stone, Geoffrey Kahn, Brion Maher,

Individual decision-making—and the propensity to select immediate, shorter rewards over, larger long-term rewards (i.e., delay discounting)—has been linked to myriad negative health outcomes including obesity, substance use, gambling, and risky sexual behavior. While delay discounting has been previously conceptualized as a trait, delay discounting may also be shaped by familial, environmental, and policy contexts. Few studies, however, have examined the contributions of state-level policies, neighborhood-level characteristics (including socioeconomic status), and relative familial wealth in relation to the development of delay discounting. In this study, we leverage data from the Adolescent Brain Cognitive Development (ABCD) longitudinal study of brain development and child health, which includes 10,712 youth and their parents. Youth, ages 8-11 at baseline (52.6% male; 64.6% White), completed measures of monetary delay discounting. Parents reported on their family address and family income. We geocoded residential data to obtain local area census characteristics, regional cost of living, and other metrics. A relative mismatch between family income and census tract-level socioeconomic data was then correlated with childrens' rate of delay discounting. Additionally, we compared youth rates of delay discounting across states using previously derived rankings of access to health and social services. Preliminary analyses indicated that youth with higher rates of delay discounting lived in areas with greater levels of community disadvantage. A complicated pattern of results with respect to state-level policies emerged, whereby protective effects were found in some but not all cases; we explore these in our talk. We likewise anticipate that our quasi-experimental approach suggests the value of examining policy differences, and of advocating for such policies where they have been stymied.

Health behaviors

Patterns of Social Media Use, Mental Health and Suicidal Behaviors in Early Adolescence: A Machine Learning Approach using Longitudinal Data Yunyu Xiao* Yunyu Xiao, Yuan Meng, Timothy Brown, Katherine Keyes, J. John Mann,

Background: In the US, 95% of teens access smartphones, and 45% are online almost constantly. The increase in social media use correlates with an escalating youth mental health crisis, with approximately 1 in 6 US youth aged 6-17 experiencing mental health problems. This period has seen a notable rise in suicidal thoughts and attempts, compounded by increasing disparities across different demographics. However, traditional research often simplifies social media use to total screen time, overlooking its multifaceted nature and the diverse impacts of different platforms.

Methods: This study utilizes data from over 11,000 children aged 9-10 years, part of the Adolescent Brain Cognitive Development (ABCD) study, monitoring changes from Year 2 to Year 4. We combined subjective youth/parent-reported data on screen time, social media platforms, and problematic use with objective monitoring via the Effortless Assessment of Risk States (EARS) tool. Hierarchical clustering helped categorize social media use patterns and examine their association with mental health issues, including depression, anxiety, and suicidal behaviors.

Findings: Our research identified two main clusters of social media use among children: Cluster 1, with higher levels of problematic usage, and Cluster 2, with more varied and potentially beneficial engagements. Significant shifts were observed, with 3,572 children (35.3%) moving from Cluster 1 to Cluster 2 between Years 2 and 3, and 1,508 (32.5%) reverting to Cluster 1 by Year 4. Only 488 (10.5%) children remained in Cluster 1 throughout, while 1,373 (29.6%) consistently stayed in Cluster 2. Children in Cluster 1 exhibited consistently higher rates of mental health issues, suicidal thoughts, and attempts compared to their counterparts.

Conclusion: The findings highlight the complex nature of social media use among young people and its potential effects on mental health. The study demonstrates the importance of distinguishing between different types of social media engagement and its impacts. The significant transitions between clusters indicate that social media habits and their effects are not static but can change over time. This variability suggests that interventions to promote healthier social media use can be effective and should be a focus for future research, policy-making, and educational programs to mitigate the adverse effects of social media on youth mental well-being.

Health behaviors

Understanding the Role of Race and Ethnicity in the association between sleep health and cardiovascular disease risk Minhazul Mohsin* Minhazul Mohsin, Brittany N. Morey,

Background: Sleep contributes to cardiovascular health and shapes cardiovascular disease (CVD) outcomes. Minoritized populations carry a disproportionate burden of both poor sleep health and CVD outcomes. However, there are few studies on minoritized sleep health, and it is unclear how the association between sleep and CVD may differ across racial and ethnic minorities. This study will examine how the association between sleep health and CVD risk differs across minoritized populations (non-Hispanic (NH) Asian, NH Black, and Hispanic) compared to NH White populations in the United States (US).

Methods: We are using the 2017-2020 National Health and Nutrition Examination Survey (NHANES), a dataset that includes self-reported information about demographics, sleep and physical examination results. By leveraging the self-reported sleep data, we have constructed a multidimensional sleep health score and the Framingham Risk Score (FRS), which is a well-established risk score to predict the morbidity and mortality associated with cardiovascular disease (CVD). To evaluate the association between sleep health and CVD, we will use a logistic regression model. Additionally, we will conduct a moderation analysis to explore whether the relationship between sleep health and FRS differs based on race or ethnicity

Result: We included 6,180 participants aged 20-80 without a history of major cardiovascular events. Our sample includes NH Asians (12.62%), NH Blacks (24.47%), Hispanics (23.67%), and NH Whites (34.42%). We found that poor sleep health varied by race/ethnicity: NH Asians (7.9%), NH Blacks (14.21%), Hispanics (11.28%), and NH Whites (8.56%).

Discussion: This study will inform the extent to which sleep health is associated with future CVD risk for minoritized populations. It may facilitate more effective and culturally tailored interventions around sleep health to prevent CVD mortality for racial and ethnic minorities.

Health behaviors

Factors associated with handgun carriage among US youth, 2021-2022 Delvon Mattingly* Delvon Mattingly, Marisa Booty, Maggie Richardson,

Background: The prevalence of handgun carriage among youth has risen over the past decade, posing significant public health concerns due to its association with premature injury and death. Therefore, this study uses recent nationally representative data to investigate risk and protective factors influencing handgun carriage among United States (US) youth.

Methods: We used pooled data on youth aged 12-17 years from the 2021 and 2022 National Survey on Drug Use and Health (n=20,491) with handgun carriage defined as a binary variable (none vs. any in the past year). To estimate whether sociodemographic, behavioral, and mental health factors were associated with handgun carriage, we employed adjusted logistic regression.

Results: The average prevalence of youth past-year handgun carriage was 4.1% from 2021-2022. In the regression model, female gender was inversely associated with handgun carriage (OR: 0.32, 95% CI: 0.24-0.42). Factors associated with increased odds of youth carrying a handgun included having an annual family income of $75,000 or more (OR: 1.72, 95% CI: 1.17-2.54), living in small metro (OR: 1.94, 95% CI: 1.49-2.53) or non-metro areas (OR: 2.39, 95% CI: 1.72-3.33), past-month alcohol use (OR: 1.50, 95% CI: 1.06-2.13), recently selling illegal drugs (OR: 13.18, 95% CI: 7.28-23.87), participating in a serious fight or attacking someone with intent to harm them (OR: 3.47, 95% CI: 2.52-4.78), and suicidality (OR: 1.47, 95% CI: 1.05-2.07). Age, race and ethnicity, tobacco, cannabis, and other illicit drug use; being arrested, having no one to turn to about serious problems, participating in violence prevention programs, having strong religious beliefs, or having a major depressive episode, were not associated with handgun carriage.

Conclusions: Youth handgun carriage is a pressing public health problem in the US. Preventive efforts aimed to mitigate gun violence exposures may benefit with a better understanding of risk and protective factors of handgun carriage.

Health behaviors

Cannabis legalization and use during pregnancy: PRAMS 2018-2020 Tim Michling* Tim Michling, Claire Margerison,

Importance

Recreational cannabis use is increasing rapidly in the United States. Twenty-four states (plus two territories and the District of Columbia) have moved to legalize commercialization and sale and use of various recreational cannabis products. Shifting social attitudes and public policies have contributed to increasing belief that cannabis is harmless and decreasing utilization of cannabis use disorder treatment. Previous studies have suggested that cannabis legalization may be associated with increased use of cannabis during pregnancy. This study incorporates the heterogeneity of policy enactment across state-level jurisdictions and individual conception data to produce a more recent and robust estimate of the association between recreational cannabis legalization and use during pregnancy.

Objective

This study seeks to quantify the association between state-level recreational cannabis legalization and cannabis use during pregnancy.

Methods

This retrospective cohort study utilizes data from the Pregnancy Risk Assessment Monitoring System (PRAMS) Opioid Supplement and Call-back Survey (2018-2020). Participants included 72,635 mothers with a live birth across 30 US states, as well as Puerto Rico and the District of Columbia. We defined pregnancies as exposed to state-level cannabis legalization if the estimated date of conception occurred after the effective date of cannabis legalization in the mother’s state of residence. We defined pregnancies in states that did not legalize cannabis or that occurred before legalization as unexposed to legalization.

Results

State-level cannabis legalization was associated with 1.5 (95%CI, 1.4-1.6) times the odds of cannabis use during pregnancy, controlling for mothers’ age, race, and level of education. Next, we will use a quasi-experimental difference-in-difference analysis to estimate the impact of changes in cannabis legalization on cannabis use during pregnancy and examine whether this impact differs by socioeconomic status.

Policy

Expanding Access to TANF During Pregnancy Reduces Maternal and Infant Mortality Emily Dore* Emily Dore, Susan Mumford, Melvin Livingston, Kelli Komro,

The United States has higher infant and maternal mortality rates compared to peer countries. Both rates have recently increased, presenting an urgent public health crisis. Poverty can negatively affect maternal and infant health directly by limiting nutritional intake and access to health care, as well as indirectly by increasing the likelihood of cardiovascular conditions, which are themselves risk factors for maternal and infant health outcomes. Safety-net programs are a potential solution as they can decrease financial stress and increase access to resources. Temporary Assistance for Needy Families (TANF) is the main cash assistance program for low-income families in the United States, though states vary in whether they allow pregnant people to participate in the program. The goal of this study is to examine the effects of allowing pregnant people to participate in the TANF program on maternal and infant mortality. Using a difference-in-difference design, mortality data from CDC Wonder databases, and TANF policy data at the state-level for 2000-2019, we compare differences in maternal and infant mortality rates between states that allow pregnant people to participate in TANF to states that do not. Secondary analyses use a triple difference design to compare infant mortality rates by maternal marital status. We find that mean maternal mortality rates are lower in states that allow pregnant people to receive benefits (-3.16 deaths, 95% CI -6.29, -0.04). Mean infant mortality rates are not significant at the $p<0.05$ level for the general sample, but the rates are lower for married people in states that allow pregnant people to receive TANF benefits by an average of 5.79 deaths (95% CI -10.95, -0.64). The difference was not significant for non-married people. The results suggest that allowing people to participate in TANF while pregnant reduces maternal and infant mortality rates and can be an important tool in addressing this public health crisis.

Policy

Effects of the 2021 Child Tax Credit expansion on perinatal health: a quasi-experimental study in two national data sets Deborah Karasek* Deborah Karasek, Daniel Collin, Justin White, Rita Hamad,

The COVID-19 pandemic led to economic hardship for many Americans and exacerbated socioeconomic and health inequities. The 2021 expansion of the Child Tax Credit (CTC) decreased material hardship and food insecurity, improved parental mental health, and increased spending on childcare, food, and other essential household expenses. However, few studies have examined the effect of the CTC expansion perinatal outcomes, despite families with young children being primary beneficiaries of the policy. This study investigated how the CTC expansion impacted perinatal health and health disparities, employing two nationally representative datasets: 1) the national vital statistics data (N=3,487,943) and 2) the Pregnancy Risk Assessment Monitoring System (PRAMS; N=27,901). Using a quasi-experimental design, we compared the changes in perinatal outcomes from before to after CTC expansion among likely eligible versus ineligible pregnant people. We examined maternal and infant outcomes: gestational hypertension, gestational diabetes, birthweight (grams), gestational age (weeks), appropriate-for-gestational-age (AGA), small-for-gestational-age (SGA), and large-for-gestational-age (LGA). We found minimal impacts of the CTC expansion, contrary to our hypothesis. In birth certificate data, CTC expansion was associated with a slightly elevated risk of gestational hypertension (0.25 percentage points (pp), 95% CI: 0.13, 0.38); lower birthweight (-5.45 g, 95%CI: -7.75, -3.16) and gestational age (-0.01 wks, (-0.02,-0.01), reduced LGA (-0.26 pp, 95%CI:-0.38,-0.14) and more AGA (0.37 pp, 95%CI: 0.21, 0.55) births. Notably, effect sizes were small. In PRAMS, results were null for all outcomes, likely reflecting the smaller sample size. Our findings are among the first to examine the effect of the CTC expansion on a large set of perinatal outcomes and highlight the need for future research to examine the longer-term impacts and ongoing changes to this important policy.

Reproductive health

Women, Infants and Children (WIC) Participation and Breastfeeding Behavior: Comparing Foreign-Born to US-Born Mothers Angela G. Campbell* Angela G. Campbell,

Objective: To compare rates of breastfeeding initiation, any breastfeeding for six months and exclusive breastfeeding among foreign-born who utilized the Women, Infants and Children (WIC) program, foreign-born non-participants, US-born WIC participants and US-born non-participants with nationally representative data.

Methods: Sample children from the National Survey of Children's Health (NSCH) 2016-2021, ages 6 months to 1 year with a biological or adopted mother living in the household were included. Descriptive statistics and logistic regressions were executed for analysis.

Results: 92.9% of foreign-born women who utilized WIC initiated breastfeeding and 36.9% exclusively breastfeed for six months. 69.1% of US-born women who utilized WIC initiated breastfeeding and 10.1% exclusively breastfed for six months. Foreign-born women who utilized WIC had a 684% [OR=7.84 95% CI (3.06, 20.10)] increase in the odds of initiating breastfeeding, a 183% [OR=2.83 95% CI (1.43, 5.63)] increase in the odds of any breastfeeding for six months and a 279% [OR=3.79 95% CI (1.60, 9.00)] increase in the odds of exclusive breastfeeding for six months relative to US-born women who utilized WIC. They also had a significant increase in the odds of initiating breastfeeding relative to foreign-born women who did not utilize WIC.

Conclusions: WIC utilization among foreign-born women is associated with high levels of breastfeeding initiation, any breastfeeding for six months and exclusive breastfeeding for six months. This is a positive reflection on the impact of WIC breastfeeding education and support programs within this demographic.

Infants/children/youth

Association of Severe COVID-19 and Persistent COVID-19 Symptoms With Food Insecurity Among US Families with Children Nicole Hair* Nicole Hair, Carly Urban,

There is accumulating evidence that patients with post-COVID-19 conditions face considerable economic consequences. At the family level, persistent or severe COVID-19 symptoms have been associated with increased odds of economic hardship. These consequences may be even more severe for economically vulnerable families with children. We use data from the Panel Study of Income Dynamics (PSID), a long-running, nationally representative household panel survey with interviews conducted before and during the COVID-19 pandemic, to examine associations between COVID-19 exposure and food insecurity in US families with children. The sample comprised a balanced panel of families with resident children who were active in the PSID in both 2019 and 2021 (n=2268). The food security status of each family was measured using the USDA Household Food Security Survey Module. The COVID-19 exposure of each family was defined using information on COVID-19 diagnoses and symptoms reported for the reference person and, if present, their spouse/partner. Families headed by an adult with a positive COVID-19 diagnosis were assigned to ordinal exposure categories based on the duration and severity of reported COVID-19 symptoms. Families with no history of COVID-19 were assigned to a reference group. Logistic regression models adjusted for a range of potentially confounding characteristics, including pre-pandemic indicators of economic hardship. Compared to families with no history of COVID-19, families headed by an adult with persistent or severe COVID-19 symptoms had a close to two-fold greater odds (1.75; 95%CI: 1.02, 3.01]) of experiencing food insecurity during the pandemic. In contrast, associations between moderate, mild, or asymptomatic COVID-19 and food insecurity were not statistically significant (0.75; 95%CI: 0.39, 1.44]). Given the lasting impact of food insecurity on children, policy actions to mitigate the economic consequences of post-COVID-19 conditions merit continued discussion.

Life-course/developmental

Maternal health during the COVID-19 pandemic in the U.S: an interrupted time series analysis Kaitlyn Jackson* Kaitlyn Jackson, Rita Hamad, Deborah Karasek, Alison Gemmill, Daniel Collin,

The COVID-19 pandemic—and subsequent policy responses aimed at curbing disease spread and reducing economic fallout—had pervasive consequences for maternal health. Maternal mortality accelerated in the US; 32.9 deaths per 100,000 live births in 2021 compared to 23.9 in 2020 and 20.1 in 2019. Maternal morbidity also worsened: cross-sectional findings showed the pandemic was associated with a 12% higher risk of gestational diabetes mellitus (GDM), 7% higher risk of gestational hypertension, and a 0.6 kg increase in gestational weight gain (GWG). Disparities were exacerbated, with Black and Hispanic people experiencing greater increases in maternal mortality than White people. Further research on maternal health during the pandemic is urgently needed to understand drivers and potential areas for intervention to reduce maternal mortality, morbidity, and health disparities. Leveraging rigorous interrupted time series methods and US Vital Statistics Birth Data Files of all live births during 2015-2021 (N=24,653,848), we estimated whether changes in maternal health trends after the onset of the COVID-19 pandemic (March 2020) differed from what would have been predicted based on pre-existing temporal trends. We found increased trends above expectation for GDM(1.7% at peak Dec 2020;95%CI: 1.3,2.1), hypertensive disorders of pregnancy(1.3% at peak Jan 2021;95%CI:0.4,2.1), and GWG(0.07 SD at peak Mar 2021; 95%CI:0.03,0.1), but also improvements in prenatal care visits. GDM increased more among Black, Hispanic, and less educated individuals. The interplay of changes in maternal health during the pandemic likely reflected the effects of infection with COVID-19 itself, and changes in healthcare access, remote work, economic security, and maternal stress. These results imply long-term and potentially intergenerational impacts of the pandemic and help to inform public health and clinical interventions and policies addressing maternal disease burden and disparities.

Life-course/developmental

A Prospective Study Examining Teacher Unfairness, Educational Attainment, and Mental and Cardiometabolic Health in Adulthood shanting chen* shanting chen,

Adolescents spend a substantial amount of time learning and socializing at school. Therefore, the social climate of school plays an important role in shaping their short- and long-term development (Huang, 2020). Students' perceptions of unfair treatment by their teachers are commonly embedded in school environments and can contribute to a negative social climate. Research has found that teacher unfairness can provoke emotional turmoil (e.g., anger, frustration) and increase somatic problems (Chen & Cui, 2020; Gini et al., 2018). However, the ways in which teacher unfairness may get "under-the-skin" to shape health across the life course is relatively unknown. Therefore, the current study examines whether the perception of unfair treatment by teachers in adolescence influences mental (i.e., depressive symptoms) and cardiometabolic health (metabolic syndrome) 13 years later in adulthood.

Method. We use data from Wave 1 and 4 of the National Longitudinal Study of Adolescent to Adult Health, a nationally representative sample of adolescents and adults. *Teacher unfairness* was assessed at Wave 1 with the item, "Teachers at my school treat students unfairly" with a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). *Depressive symptoms* were assessed with 5 items (e.g., I felt depressed) at Wave 1 and 4. *Self-reported health* was assessed using one item ("In general, how is your health?") at Wave 1 and 4. *Metabolic syndrome* count score was calculated as the number of risk factors of 5 biomarkers at Wave 4 (e.g., blood pressure, waist circumference, high-density lipoprotein levels, glucose, BMI). *Educational attainment* was measured at Wave 4 with a scale ranging from 8th grade or less (1) to master's degree (9).

Results. Multilevel mediation analyses showed that adolescents' own perceptions of teacher unfairness were linked to lower educational attainment at Wave 4, which, in turn, was linked to higher depressive symptoms and metabolic syndrome at Wave 4.

Discussion. Taking a life course perspective, findings suggest that individual perceptions of unfair teacher treatment can undermine an individual's educational attainment in adulthood, which, in turn, contributes to depressive symptoms and has an "under-the-skin" effect, taking a toll on the physical body and manifesting as increased metabolic syndromes.

Life-course/developmental

Examining the Role of Southern Context over the Life Course for Dementia, Disability, and Mortality Among Older U.S. Blacks and Whites Jaein Kim* Jaein Kim, Hyungmin Cha, Mateo P. Farina, Mark D. Hayward,

Racial inequalities in older adult health are well-documented. Compared to Whites, Blacks have greater risks of disability, dementia, multimorbidity and mortality. These differences in aged-related health are paralleled by race differences in context. In particular, approximately 80% of older Blacks were born in Jim Crow South no matter where they currently live compared to 30% percent of older Whites. In the United States, the U.S. South has historically structured the life course experiences of Black and White older adults differently through legalized racial segregation. As a result, the role of association of Southern context with later life health risks is expected to differ substantially across the groups. We focus on three critical dimensions of population health to better understand the role of context for race difference in health – cognitive and physical functioning as well as mortality. Drawing on the Health and Retirement study from 2000-2018, we estimate a series of hazard models for each of the health outcomes separately for each race group. This approach promises new insights into the role of context for within-group variation in the health outcomes as well as for potential between group differences for each specific outcome. Whereas for Whites Southern birth regardless of adulthood Southern residence was associated with increased risk across all three conditions, for Black older adults, we found more heterogeneity with Black older adults who were born in the South and lived in the South in adulthood having the highest risk, followed by those who left the South, and those who were born outside the South. Altogether, these findings suggest that the health disadvantages experienced by Black older adults cannot be attributed solely to current socioeconomic status or lifestyle factors, but must also be understood in the context of a lifetime of exposure to racial discrimination and segregation.

Non-health institutions (business, political, education systems)

Educational Trajectories and Midlife Health Kelsey Shaulis* Kelsey Shaulis,

Higher levels of educational attainment are associated with better physical adult health (Lee et al., 2013; Lynch, 2003; Ross & Wu, 1995). Through direct and indirect paths, education can contribute to enhanced resources that can be mobilized to promote and protect health (Carroll et al., 2017; Hayward et al., 2015; Link & Phelan, 1995; Moore & Hayward, 1990). Despite evidence supporting the linear relationship between educational attainment and health, inconsistencies in this relationship have emerged as a glitch in the gradient (Zajacova, Rogers, and Johnson-Lawrence, 2012). In particular, adults with two-year degrees or some college report equivalent, if not worse, health outcomes than those with a high school degree (Zajacova et al., 2012, 2020; Zajacova & Johnson-Lawrence, 2016). The pathways through which adults end up with these education levels are suggested to contribute to this unexpected finding. Specifically, those with some college have failed to complete a credential which could add psychological stress, stigma, or financial constraints (Zajacova et al., 2020).

Using longitudinal data from the sophomore cohort of the High School and Beyond (HS&B:So) study (n=8,790), the current study aims to identify classes of multidimensional educational trajectories and explore the association between the identified classes and midlife cardiovascular and metabolic disease. I will begin by identifying latent classes of educational trajectories defined by a series of indicators (highest degree attained, age at attainment of highest degree, time to degree, degrees attempted but not completed, and spells of enrollment) beyond a single measure of degree attainment. Among sample members, returning to education in adulthood is common (61%) (Grodsky et al. 2021) and variation in these trajectories is expected. The identified classes will then be used to estimate the regression of midlife cardiovascular and metabolic disease on the classes of educational trajectories.

Health systems

Does Quality of Care Inform Health Insurance Enrolment Decisions in Low- and Middle-Income Countries? A Geospatial Analysis Nigel James* Nigel James, Yubraj Acharya, Ndilimeke J.C. Nashandi, Yosef Bodovski,

Despite sustained efforts, health insurance utilization in low- and middle-income countries (LMICs) remains low. The poor quality of care, particularly in public health facilities, has been suggested as a key supply-side barrier to voluntary health insurance enrollment, yet empirical validation is lacking. We investigated the impact of antenatal care (ANC) quality on health insurance enrollment decisions among women of reproductive age in Namibia. To address the paucity of data needed for this examination, we integrated data from two nationally-representative surveys using a geospatial linkage technique that has rarely been used for these data. Our findings reveal that ANC quality is not significantly associated with insurance uptake. Nevertheless, we find substantial variation in the impact of quality of care on health insurance enrollment across regions with differing health facility densities. These findings suggest that physical access and the availability of options are critical in influencing healthcare utilization and insurance enrollment decisions. Additionally, we find overwhelming evidence that the likelihood of having insurance consistently increases with rising wealth and higher levels of educational attainment, irrespective of the quality of care. This suggests that, in Namibia, voluntary health insurance enrollment is largely influenced by wealth and levels of education. To expand health insurance coverage, the government should prioritize interventions that ensure affordability, such as premium subsidies, and increase knowledge on insurance’s importance while continuing quality improvement efforts.

Race/Ethnicity

Patient-Centered Stomach Cancer Prevention in Chinese Americans: A Randomized Controlled Trial Yi-Ling Tan* Simona Kwon, Angel Mui, Laura Wyatt, Renee Williams, Qiuqu Zhao, Patrick Xiao, Chau Trinh-Shevrin,

Background

Stomach cancer is the most common infection-related cancer worldwide. In the United States, Chinese Americans experience a disproportionate burden of stomach cancer incidence and mortality. Infection with the bacterium Helicobacter pylori (H. Pylori) is the strongest risk factor for stomach cancer. However, adherence to the complex H. pylori treatment regimen is challenging for Chinese New Yorkers with limited English proficiency (LEP) and low health literacy. By linking bilingual/bicultural community health workers (CHWs) to Chinese-speaking patients in clinical settings – the first intervention of its kind that targets this at-risk population – we aim to facilitate H. pylori eradication and stomach cancer prevention.

Objective

We seek to implement and assess the efficacy of a patient-centered, culturally-adapted and in-language intervention to reduce stomach cancer risk factors for at-risk Chinese American immigrants in New York City.

Methods

We conducted a multiyear, 2-arm randomized controlled trial (n=135). Participants randomized to the intervention group (n=68) were paired with a bilingual/bicultural CHW for 6 months and received a standardized protocol consisting of culturally and linguistically-adapted educational sessions and goal-setting. Data collection included: 1) baseline, 2-month and 6-month surveys; 2) intervention group participants interviews; and 3) encounter reports. Clinical outcomes were confirmed through chart review.

Results

Participants were predominantly limited English proficient, low-income Chinese immigrants with low health literacy and limited knowledge of H. pylori and stomach cancer risk factors. At 2-month follow up, H. pylori and stomach cancer knowledge and decision self-efficacy increased significantly for both groups; change in knowledge was significantly greater for the treatment group. Final results will include 6-month survey and confirmatory H. pylori test results. Encounter reports detailing participant experience with medication adherence, goal-setting and behavior change will also be discussed.

Health care/services

Experience of Healthcare Services Among Disabled U.S. Adults Elizabeth Stone* Elizabeth Stone, Sofia Bonsignore, Hillary Samples,

One in four people in the U.S. have a disability. People with disabilities (PWD) face significant health disparities and barriers to accessing high-quality healthcare services due in part to medical ableism. We examined self-reported experiences of healthcare services among a national sample of U.S. adults comparing those with and without disabilities, and among PWD, across five disability groups: hearing, vision, physical, cognitive, and multiple disabilities. Cross-sectional regression analyses were conducted using 2021 Medical Expenditure Panel Survey data. All analyses controlled for demographic information (e.g., age, sex, insurance) and used survey weights for generalization to the overall U.S. population. PWD reported lower satisfaction with healthcare services overall compared to those without disabilities (7.93, 95% CI: 7.82-8.03 vs. 8.40, 95% CI: 8.35-8.44 on a scale from 0 to 10). PWD were less likely to report that health providers listened carefully to them, explained things in a way that was easy to understand, showed respect for what they had to say, spent enough time with them, gave advice that was easy to understand, or offered help in filling out forms than those without disabilities. Among PWD, only those with multiple disabilities reported significantly lower ratings of health care services compared to those with hearing disabilities (7.83, 95% CI: 7.67-7.99 vs. 8.4, 95% CI: 8.14-8.60). Compared to those with hearing disabilities, adults with cognitive disabilities were less likely to report that providers listened carefully and those with multiple disabilities were less likely to report that providers listened carefully, explained things in a way that was easy to understand, showed respect for what they had to say, spent enough time with them, or gave advice that was easy to understand. Overall, PWD report worse healthcare experiences than people without disabilities driven by more negative experiences among those with multiple disabilities.

Health care/services

The Association of Social Determinants and Health Service Deficits with Delay in Dental Care Due to Cost and Dental Visits. McKing Amedari* McKing Amedari, Ifeoma Amedari, Mauda Monger, Benjamin Walker,

Delaying dental visits contributes to missed opportunities for the early detection of dental conditions, like cavities and oral cancers, often due to cost concerns. Utilizing data from the 2022 National Health Interview Survey (NHIS) for U.S. adults aged 18-64, we investigated how social determinants and health service deficits are associated with delayed dental care due to cost and absence of dental visits in the previous year. Our independent variables were social determinants and health service deficits. The dependent variables were delayed dental care due to cost and no dental visits in the last 12 months. Our analytic sample included 15,993 participants, representing an estimated target population of 198,443,791 Americans aged 18 to 64. The mean age was 41.22 years (95% CI, 40.9, 41.5) and had a balanced gender distribution (males: 49.3%). Examining the prevalence of delays and forgone dental care showed that 19.2% (95% CI, 18.4, 20.0) had delayed dental treatment due to cost, and 35.7% (95% CI, 34.7, 36.7) had not visited the dentist in the last 12 months. Logistic regression models showed increased odds in persons with no health insurance (OR, 2.84; 95% CI, 2.44, 3.31) but decreased with higher family income, >400% FPL vs <100% FPL (OR, 0.42; 95% CI, 0.35, 0.51) and higher educational qualification, bachelor, or higher degree vs less than high school degree (OR 0.91; 95% CI, 0.73, 1.12). Health service deficit variables were strongly associated with not making a dental visit in the last 12 months ($p<0.001$). While Income and health insurance are essential determinants of delay in obtaining dental care due to cost, other social determinants, such as the level of education, should be considered. Additionally, the strong associations between the HSD variables and dental service utilization are opportunities for ensuring medical and dental integration for patient-centered care.

Structural factors

More than Choice: Exploring Structural Factors Associated with Site of Contraception Access in Cisgender Women Using 2022 BRFSS Kene Orakwue* Kene Orakwue, Bryce Takenaka, Aakriti Shrestha, Ashley Nurse, Sitara Weerakoon,

Objectives. We explore structural factors related to where individuals access contraception services. Additionally, we further investigate if experiences of medical racism impact where people seek care.

Methods. Data was obtained from the 2022 BRFSS (weighted n=132,751,475; unweighted n=230, 910). The explanatory variable was perceived medical/institutional racism:: ‘treated differently’ or ‘treated the same’ as other races. The outcome variable was the site of contraception access:: primary care doctor, community clinic or other. Our results were stratified by ethnoracial identity. Other covariates included: metropolitan status, access to transportation and current financial status. We ran weighted general descriptive statistics, bivariate analyses (pearson correlation), and multinomial logistic regressions.

Results. In our preliminary analysis, among cisgender women, majority identified as white (58.3%), majority lived in urban areas (85.4%), majority perceived their treatment as the same as other races (70.1%) and accessed contraception services at a primary care doctor’s office (79.2%). We found that after controlling for age, racial identity salience, education, income, and health insurance, that Non-Hispanic Black identifying cisgender women had 5.96 the odds (OR: 5.96; CI: 2.08, 17.09) of obtaining contraception services at a community clinic as compared to their Non-Hispanic white counterparts at p value of 0.001. Furthermore, cisgender women who perceived their healthcare treatment differently than other races had double the odds (OR: 2.11; CI:1.08, 4.13) of receiving care at a community clinic as compared to those who perceived their treatment as the same at a p value of 0.03.

Conclusion. Perceived experiences of racism in healthcare settings is associated with individuals seeking out community care. Understanding the varying structural factors related to reproductive care decision making can better inform institutional best practices.

Policy

Evictions, Legal Counsel, and Population Health: A Mixed Methods Analysis Will von Geldern* Will von Geldern,

Access to stable, affordable housing is a critical determinant of population health (1). As rates of housing cost burden have increased in recent decades, research has documented the staggering prevalence and consequences of housing evictions (2,3). More than 7 million individuals face eviction filings each year, which have been linked to reduced healthcare access, depression, stress, and excess mortality (3).

In an effort to reduce the consequences of eviction, 22 cities, counties, and states have moved to provide near-universal access to legal counsel for evicted tenants (4). In 2021, Washington became the first state to authorize a policy providing court-appointed attorneys to low-income tenants facing eviction (5). Preliminary evidence from Washington and comparable programs suggests that legal counsel could improve population health outcomes by reducing monetary judgments against tenants and decreasing the likelihood of forced residential mobility (6,7).

In addition to achieving positive case outcomes, qualitative research from Washington (7) suggests that legal aid could produce other population-level health benefits for low-income renters by affecting multiple stages of the eviction process. Several studies have acknowledged that distinct stages of an eviction process might differentially produce certain health outcomes (8,9), and my presentation will examine how legal counsel affects the eviction process through this lens.

Drawing on multiple data sources, I will present a) a literature review on the health-related impacts of eviction and a conceptual framework for understanding health impacts of legal counsel b) descriptive quantitative analysis of administrative data on 1,000 eviction cases from a period after pandemic-era rental assistance lapsed, and c) qualitative analysis of approximately 50 interviews with recently evicted tenants. The presentation will theoretically and empirically explore how legal counsel could improve population health.

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Health equity

Using Human-Centered Design Principles to Maximize Cross-Sector Partnerships that Address Social Drivers of Health Cloé Destinoble* Cloé Destinoble, Cloe Destinoble, Nalani Tarrant, Lindsey Schnell,

Effective cross-sector collaborations can be a force for driving sustainable and upstream change to better integrate systems for complex care. As community, state, and national leaders, health centers can use social drivers of health (SDOH) data to elevate patient voices. Fueled by this data, informed by clinical outcomes, and bolstered by committed leaders, health centers can develop and strengthen relationships with other social service organizations, businesses, and economic development entities.

With support from the Robert Wood Johnson Foundation, NACHC facilitated a series of “design sprints”, which are a sequence of rapid-cycle, peer-driven training and technical assistance sessions. The design sprints guided four cohorts of local cross-sector community partners to use community voice and data-driven strategies to develop initiatives that improve and sustain health equity.

Findings from this effort led to further support from RWJF, allowing NACHC the opportunity to build upon the foundation and learnings via the development of national listening sessions on equitable health and well-being. Thirty-nine listening sessions were hosted by NACHC and attended by 136 individuals representing 34 states and Puerto Rico. This included many different types of key health center professionals such as C-Suite, Clinical Care, Quality Improvement, Enabling Services, Population Health, and Data/Informatics.

During the session, NACHC will share learnings from the design sprint process and the listening sessions on using human-centered design principles for cross-sector collaboration between community health centers, public health, and social service providers.

Structural factors

Climates of Exclusion and Immigrants' Occupational Health Claire Altman* Claire Altman, Molly Dondero,

Latino immigrants, one-half of the foreign-born US workforce, are disproportionately funneled into riskier "3-D" jobs with higher rates of illnesses, injuries, and fatalities. Research documents the importance of work for health, but infrequently conceptualizes work as a structural determinant of health. The proposed research will examine the additive and interactive effects of occupational contexts with other structural contexts—state and local immigrant policy and immigration enforcement climates, which jointly form climates of exclusion or inclusion. We will examine how these contexts shape exposure to hazardous occupations in ways that reduce or exacerbate disparities in physical health outcomes.

Methodological approaches to studying public health

Approaches for rapidly aligning interdisciplinary community research teams on participatory systems change methods: System dynamics "Clinics" Ellis Ballard* Ellis Ballard, Stephanie Hernandez, Devon Payne-Sturges,

Background: The continued focus of structural racism & health equity as public health issues have highlighted the need for tools and methods to explicitly examine the institutions, organizational and policy processes through which structural racism operates. Systems science methods, particularly community-engaged and participatory systems science methods, are emerging as important tools to understand structural racism as a systemic phenomenon, yet there remain significant challenges to pragmatically implement these tools in the interdisciplinary research teams necessary to do this work, and in community-research partnerships.

Methods: We present system dynamics "Clinics" as a method to rapidly converge interdisciplinary disciplinary community research teams to: define a problem space on a public health systems question; provide hands-on methodological orientation to community based system dynamics tool; and activate a collaborative partnership to design & implementation for future community-based work. This approach has been used in multiple community-engaged public health research studies on topics ranging from the double burden of malnutrition to inclusion of children with disabilities in rural schools to examining child neurological development responses to social and environmental stressors.

Case Study: The research team hosted for the RESPIRAR Project (funded by NIEHS) in summer 2023 to bring together labor organizers from a community non-profit, environmental exposures scientists, and legal scholars to explore structural dynamics of migrant farmworker heat exposures and to initiate the design of community based system dynamics workshops with community stakeholders. The workshop resulted in key structural insights about heat exposures as a structural racism issue, which are relevant to other health inequities impacting farmworkers. In addition, the workshop helped identify design criteria for community workshop planning which are under way in summer 2024.

Reproductive health

It takes two: Black men’s partner effects on dyadic risk for unintended pregnancy Emily Brown* Emily Brown, Carmen Peak,

About 45% of pregnancies in the United States are unintended, and unintended births are estimated to be twice as high among non-Hispanic Black women compared to non-Hispanic White women (Finer & Zolna, 2016; Zolna & Lindberg, 2012). While research on unintended pregnancy tends to focus on adolescent and single women, over half of pregnancies among cohabiting women and over a quarter of pregnancies among married women are unintended, and more likely to result in unintended births. Negative consequences of unintended birth can include delayed antenatal care, low birth weight, lower likelihood the mother will breastfeed, higher risk of infant mortality, and post-partum depression. More research is needed to clarify whether racial disparities in unintended pregnancy and contraceptive use are in part due to differences in pregnancy ambivalence, differences in value for contraceptive efficacy, or due to other upstream social characteristics and experiences (e.g., sociocultural heritage, moral injury). Moreover, very few studies of pregnancy intentions or contraceptive attitudes (e.g., Kraft et al., 2010; Yoo et al., 2014) have included men in the analyses, so more research is needed regarding men’s pregnancy beliefs and how they might shape contraceptive use and reproductive outcomes. To help address these gaps, this study examined pregnancy beliefs and contraceptive values of heterosexual men and women in cohabiting and married adult couples using multinomial logit structural equation modeling analyses of longitudinal data from the National Couples Survey. This presentation will focus on the results for non-Hispanic Black men’s pregnancy ambivalence and value for contraceptive efficacy predicting dyadic risk of unintended pregnancy. We will discuss how these attitudes might be shaped by racial socialization and discuss implications for public health interventions.

Reproductive health

Stepping Up! Youth and parents’ lived experiences with a sexual and reproductive health intervention in western Kenya

Nema C.M. Aluku* Nema Aluku, Yvonne Wanjiru, Sylvia Ambani, Maureen Wanjiru, Abigail A. Lee, William T. Story,

Background: In western Kenya, 29% of adolescents ages 15-19 have begun childbearing, which can lead to detrimental social, emotional, and physical outcomes for both mother and child. Stepping Up! is an intervention that aims to delay childbearing among adolescent women in western Kenya by delaying sexual initiation and increasing family planning use. This study aims to explore participants’ lived experiences after the Stepping Up! intervention.

Methods: This study was implemented in two counties in western Kenya—Kakamega and Uasin Gishu. The Stepping Up! program utilized two evidence-based curricula for youth (Stepping Stones) and their parents (Families Matter!), which were adapted for the western Kenyan context. The curricula were implemented simultaneously from November 2022 to March 2023. Following implementation, focus group discussions (FGDs) were conducted in August 2023 with 60 adolescents (15-24 years), 17 parents/guardians, and 44 community facilitators. All FGDs were audio recorded with consent, transcribed verbatim, and translated into English. Transcripts were thematically coded using Dedoose and code summaries were developed to identify the positive aspects of the Stepping Up! intervention.

Results: The Stepping Up! intervention improved communication about sexual and reproductive health (SRH) between youth and their parents, built confidence in parents and youth to talk about sex, and helped reduce stigma related to SRH. Both parents and youth reported that their relationships with one another were stronger, and they were more confident talking about sex compared to before the intervention when they were afraid to discuss sex and sexuality. Youth also reported that they should not judge others who use family planning, and they were no longer hesitant to use SRH services.

Conclusion: This study demonstrates that SRH interventions should focus on both parents and children to improve communication, build confidence, and reduce stigma related to SRH.

Interventions/Programs

Identifying Community Level Barriers to Optimal Heart Health: Insights from the Skills-based Education Strategies for Reduction of Vascular Events in Orange County (SERVE OC) Intervention Darnisha Draughter* Darnisha Draughter, Desiree Gutierrez, Cassandra Cardenas, Joceline Porron, Julie Huynh, Kha Nguyen, Omar Morales-Haro, Stephania Tovar Vargas, Alissa Kurzman, Bruce Albala, Bernadette Boden-Albala,

Background: Half of US Hispanic adults have cardiovascular disease (CVD). The Skills-Based Educational Strategies for Reduction of Vascular Events in Orange County (SERVE OC), is a RCT comparing a family-based intervention to self-management in enhancing AHA's Life's Essential 8. Focus groups were conducted to understand barriers to optimal heart health, identify facilitators to family-based approaches and characterize barriers/solutions to inform a community-driven action plan.

Methods: Thirteen focus groups (N=69) were conducted with Hispanic community health professionals, promotoras, NGOs and community members. Focus groups were recorded, transcribed, and qualitatively coded with Dedoose using a deductive process focused on social support theory and the social ecological model.

Results: Participants expressed a lack of knowledge of CVD risk factors and prevention. Participants saw family networks as sources of emotional and instrumental support around health – "Knowing what activities are best for our family, getting tips and recipes from each other helps us make better choices." Promotoras provided informational and appraisal support through health information and encouragement to increase self-efficacy – "Getting positive feedback…motivates us to keep going. It makes us feel proud of the steps to improve our family's health." Barriers to family-based interventions included time constraints and technological barriers – "The Latino community is …excessively working. We … do not prioritize our health." Community level solutions included community health education around nutrition and exercise – "Workshops help families… in understanding the idea of balanced healthy diets and the prevention of illness."

Conclusion: SERVE OC included family cooking classes, heart health models, flexible appointments and a tech team to overcome the digital divide. SERVE OC has a dissemination plan to share findings with the local government to co-produce a community action plan.

Interventions/Programs

Understanding the Experiences and Impact of Salus Populi: Qualitative Interviews with Participants of a Judicial Education Program on the SDOH Francesca Korte* Francesca Korte, Isabel Geisler, Elaine Marshall, Katherine Hazen, Wendy Parmet, Alisa Lincoln,

The social determinants of health (SDOH), also referred to as the social drivers of health, are the social and environmental conditions that impact health and shape the patterning of health inequities. Courts regularly make rulings in key areas of the SDOH, like housing and education, and thus the judiciary can significantly transform the health outcomes of people and communities in ways that either exacerbate or attenuate inequities. Despite this, most judges have little opportunity to learn about the SDOH or how to engage with and evaluate research evidence on the SDOH. To fill this gap, Salus Populi (SP) offers a tuition-free judicial education program training judges on the SDOH and their relationship to the law. This qualitative evaluation study examined participants' reflections on and reactions to the SP training. In particular, we focus on how participants describe both the benefits and challenges of incorporating their knowledge of the SDOH into their judicial decision-making. We draw from semi-structured interviews with legal professionals (N = 14) who participated in at least one SP program. Interviews were audio recorded, transcribed, and analyzed thematically. We will present on the results of the first 14 qualitative interviews. We anticipate that, as a result of the SP program, participants' understanding of the legal system will expand to incorporate the SDOH. Furthermore, we expect that participants will report applying their SDOH knowledge to various decisions after the SP program, including orders for services, dispositions, and evidentiary motions. Finally, we predict that some participants will experience barriers to applying their SDOH knowledge to their judicial decision-making due to a number of factors including court-specific characteristics. Lessons learned from the evaluation of the SP program highlight the importance of expanding knowledge of the SDOH to new actors and sectors to increase understanding of the ways that inter-sector work shapes both individual and population health. SP participants are not only satisfied by the training content but apply what they learn to their work and understand the ways that their work is both impacted by and shapes the SDOH.

Health equity

The intergenerational impact of precarious work: A retrospective cohort analysis of the association between parent's employment quality and their children's risk of violence involvement Julia Lund* Julia Lund, Nicole Kravitz-Wirtz, Anjum Hajat,

BACKGROUND: In the United States (US), the quality of one's job is predictive of their health, material wealth, and capacity for positive emotional and physical parental involvement – factors intricately linked with their children's development and health outcomes. In the US system of racial capitalism, quality employment is inequitably distributed, with racialized and minoritized groups having unfairly limited access to high quality jobs. Violence is also a racialized socioeconomic phenomenon; Black and Brown communities are disproportionately burdened owing to systemic disinvestment. In this study, we explored the intergenerational impact of parents' employment quality (EQ) on the likelihood of their children's involvement in violence.
METHODS: Using the Panel Study of Income Dynamics (PSID), we assigned parents an EQ score based on measures of employment stability, material rewards, working time arrangements, and collective organization. Higher EQ scores indicate worse, more precarious employment. Then, using the 2005-2019 biennial Transition to Adulthood Supplement, we ran multivariable logistic regression models to estimate the probability of arrest for a violent offense in early adulthood (ages 18-28) adjusting for child, parent, and community factors. We explored the association between violence and maternal and paternal EQ separately.
RESULTS: 286 young adults (6%) had one or more violent arrests. White parents had better EQ than Black and Hispanic parents. Children of parents with more precarious EQ had higher likelihood of arrest for violent crime (OR [95% CI]: 1.41 [.99, 2.02] for fathers; 1.24 [0.93, 1.65] for mothers). Material rewards was the dimension of EQ most strongly associated with the outcome.
CONCLUSIONS: Employment quality may be a modifiable structural determinant of violence. Supportive labor policies and improvement of equitable access to quality jobs may provide multi-generational benefit to health, safety, and equity outcomes.

Socioeconomic status

Wealth matters: income, savings, and financial stress as determinants of depression and anxiety across the COVID-19 pandemic Catherine Ettman* Catherine Ettman, Ben Thornburg, Salma M. Abdalla, Sandro Galea,

Financial, material, and social assets are core drivers of access to salutary resources. However, there is a paucity of research about how non-income financial assets shape mental health. We use the experience of the COVID-19 pandemic to explore the relation of income, savings, and financial stress with symptoms of depression and of anxiety using a nationally representative, longitudinal survey of U.S. adults fielded annually from 2020 through 2023 (n=5,084 responses across n=1,271 participants). We used multivariate logistic mixed-effects regression models to estimate the association of savings, income, and financial stress separately and together with symptoms of depression (PHQ-9>9), anxiety (GAD-7>9), and their co-occurrence, controlling for demographic indicators. We found, first, that adults with <$5,000 in personal savings reported around 3 times the odds of positive screen for depression, anxiety, and their comorbidity, respectively, as adults with ≥$100,000 in savings. Second, when controlling for savings, income was not associated with symptoms of anxiety. Third, financial stress was associated with poor mental health even controlling for income and savings. Across time, savings and financial stress were both associated with symptoms of depression, anxiety, and their co-occurrence, even when controlling for income. Income alone may not fully capture the influence of financial assets on mental health.

Socioeconomic status

Effects of a Cancer Diagnosis on Economic Prosperity in the Long Run: Evidence from Linked Survey and Credit Data

Amanda Thomas* Amanda Thomas, Eric Grodsky, Chandra Muller, John Robert Warren,

Although 40% of Americans will experience cancer in their lifetime, little is known about the long-term impacts of cancer diagnosis on debt, wealth, and financial precarity later in life.

Using data from High School and Beyond (HSB) —a large (n~25,500) nationally representative study of high school students followed from 1980 through 2022—linked to consumer credit records (2004-2023), we estimate changes in debt, credit, and other economic measures resulting from after a cancer diagnosis. We also consider how these processes vary across demographic, educational, and family background groups.

Approximately 13,900 individuals from the original cohort responded to the 2021/2022 survey, with more than 1,000 indicating a lifetime diagnosis other than skin cancer; another 490 cohort members died from various forms of cancer by 2021/2022. The most common cancers reported were breast (n=350) and prostate/vaginal (n=150 each) with more than one-third diagnosed in early adulthood (≤ 45 years old). Preliminary results using cross-sectional measures of financial well-being indicate reduced annual income earnings and heightened financial precarity as compared to otherwise similar people without a cancer diagnosis. With linked consumer credit data, we are well-equipped to expand knowledge about the effects of a cancer diagnosis on financial health by analyzing fluctuations in indicators such as credit score, medical and other forms of debt, bankruptcy, and estimated wealth in the months and years after a cancer diagnosis. Our analyses will model these outcomes, inclusive of key confounders (age, education, type of cancer, etc.) both for the full sample of demographic and socioeconomic subgroups.

Infants/children/youth

Comparison of trends in NCANDS reports and mortality from death certificates across time, place, race and age. Saron Goitom* Saron Goitom, Krista Neumann, Stephanie Veazie, Jennifer Ahern, Susan Mason, Corinne Riddell,

Background: Child maltreatment is a persistent public health problem in the United States, and experiences of maltreatment may impact health well into adulthood. Child Protective Services (CPS) data are the de facto data source for child maltreatment. These data are compiled from all 50 US states through the National Child Abuse and Neglect Data System (NCANDS). However, CPS data have well-established limitations, including variability in how data are collected over time, differing definitions of child maltreatment across states, and susceptibility to race and income-based reporting biases. Maltreatment-related mortality could be a complementary source of child maltreatment surveillance data.

Methods: This study addresses a critical gap in the literature by comparing trends over time and patterns across state, race/ethnicity, and age in child maltreatment report rates versus child maltreatment-related mortality rates derived from national mortality data between 2005 and 2020.

Results: We found that these two measures of maltreatment generally do not align over time or by state, and show different patterns by race/ethnicity and age. Specifically, trends in maltreatment-related deaths are relatively constant across the study period for all racial groups, but maltreatment report rates increase, particularly for Non-Hispanic Black children. Additionally, maltreatment-related deaths were constant over time for infants, and slightly decreased for children ages 1 to 4 yrs. In contrast, maltreatment report rates slightly increased for both age groups. There were marked differences in death and report rate levels and patterns by state, overall and by race and age. Only 15 states were in the same tertile for both maltreatment-related deaths and reports, with even less alignment when stratified by race and age.

Discussion: Trends in child maltreatment report rates and death rates did not align. Future work should consider additional sources of data, such as child-maltreatment related hospitalizations. These findings highlight the need for work to identify an unbiased, comprehensive and consistent approach to capture patterns of maltreatment in the United States.

Socioeconomic status

Non-Profit Hospital Growth and the Abandonment of Those Without Financial Resources

Ernest Rovella* Ernest Rovella,

Research Objective: The objective was to study how growth in non-profit hospital care has occurred relative to the median income of the patient’s zip code.
Study Design: Data from the US Census and the Centers for Medicare and Medicaid Services was combined to identify non-profit hospitals, zip codes served by those hospitals, and the median income of those zip codes. 2015 was used as the base year with the most current data of 2022 used for comparison. Total Charges was used to determine the percentage of overall volume attributed to each zip code. Since charges are unique to each hospital and can vary over time, the percentages were calculated as isolated by hospital and year. Zip codes contributing to less than 1% of the hospital’s Total Charges were removed from analysis.
Population Studied: US non-profit hospitals and the patients that received services.
Principal Findings: Preliminary sample data shows that non-profit hospitals have increased in size but utilization has declined for zip codes with relatively lower median incomes. Zip codes that increased as a percentage of total revenue had median household incomes of $3572 higher than zip codes that decreased as a percentage of total revenue. Over the 7-year period, the number of zip codes contributing to more than 1% of the total revenue increased by 20%. Zip codes included from the beginning of the period remained constant with their relative revenue contribution when the median income was above average. Zip codes with below market average median incomes saw a decrease.
Conclusions: Non-profit hospitals have increased in patient charges over the study period. New zip codes were added to the service areas and included areas with below market average median income. However, the majority of growth in the original service areas was limited to zip codes with above average median income despite growth in the population of zip codes with below market average median incomes.
Implications: Non-profit hospitals are targeting growth in areas with greater median income at the expense of areas with lower income. Proportionally less care is provided to those who have fewer financial resources suggesting there may be a link between income and access to care.

Aging

Identifying Socio-behavioral and Environmental Drivers of Trends in Biological Aging in the U.S. population, 1999-2018 Gloria Graf* Gloria Graf,

Importance: The prevalence and relative distribution of many chronic risk factors for premature aging have shifted over time in the U.S. population. These risk factors, including social, behavioral and environmental exposures, are often disproportionately concentrated among minoritized groups.

Objective: We conducted a proof-of-concept study evaluating the extent to which socio-behavioral and environmental exposures contributed to pre-pandemic trajectories in population aging and aging health equity over the first two decades of the 21st century.

Methods: We analyzed data from 29,487 Black and White participants in the 1999-2018 waves of continuous NHANES. Biological aging was quantified using the PhenoAge algorithm; biological-age advancement was calculated as the difference between PhenoAge and chronological age. We implemented the Kitagawa-Blinder-Oaxaca decomposition method to evaluate the contribution of four candidate exposures (obesity, smoking, lead, and PAH exposure) to differences in biological aging between 1) earlier and later continuous NHANES periods, and 2) Black and White Americans.

Results: Survey-weighted linear models revealed significant increases in biological aging over time in the full survey-weighted analysis sample and in all race-sex subgroups (β range=0.06-0.12, all $p<0.001$). Black participants evidenced more-advanced biological aging in each wave of survey measurement, with tests of interaction between race and period revealing an average increase in Black-White disparities in biological aging of 0.04 per year from 1999-2018 ($p<0.01$). Changes in the distribution of candidate exposures (e.g., BMI and PAH) explained between one-quarter and one-half of observed differences in biological aging over the study period. Changes in the distribution of BMI accounted for approximately one-third of racial disparities in biological aging over the entire study period.

Conclusions and Relevance: Further research is needed to identify precise causal impacts of exposures driving accelerated aging trajectories in the U.S. population in recent years; our work represents early proof-of-concept that biological aging measures may be well-suited for this purpose.

Aging

Everyday and Lifetime Discrimination: Examining Variation in Epigenetic Aging Among Three Clocks Sarah Salas* Sarah Salas, Michal Engelman, Joseph Clark, Wei Xu, Amy Schultz, Kristen Malecki,

Prior research suggests that exposure to discrimination varies across racial groups, and that exposure to a range of social and economic stressors is associated with accelerated biological aging. However, few studies have examined variation in the relationship between perceived discrimination and biological aging across racial groups. Using survey and biomarker data from the Survey of the Health of Wisconsin, we assess the relationship between lifetime and everyday discrimination and accelerated aging as measured via three epigenetic clocks (PhenoAge, GrimAge, and DunedinPACE). For the full sample, there is a positive and significant association between daily discrimination and accelerated aging as measured by GrimAge and DunedinPACE, though the effect size weakens when adjusting for race, gender, education, smoking, and BMI. Disaggregating the sample by race demonstrates that the significant association for all three clocks is driven by white participants in this sample. To understand this counter-intuitive finding, we explore mechanisms related to selection, geography, and differences between perceived and structural indicators of discrimination and disadvantage in Wisconsin.

Aging

Racial and Ethnic Disparities Associated with Early Retirement Due to Disability: The Role of Risky Work Environments Over the Life Course Rebekah Carpenter* Rebekah Carpenter, Qize Chen, Amanda Sonnega, Dawn Carr, Qiuchang (Katy) Cao,

Work is a significant life course factor influencing population health and wellbeing. Specifically, the structuring of work may be an important driver shaping exposures to work environments that are harmful to health and overall longevity. Jobs that are physically demanding, stressful, and dangerous are typically associated with earlier onset of physical health decline and may be associated with decreased labor force engagement and increased risk of early retirement due to disability. Structural racism within the U.S. educational, judicial, and labor market systems significantly influences occupational sorting by race/ethnicity, resulting in the unequal concentration of Black and Hispanic workers in physically demanding and dangerous jobs. If such jobs lead to physical health decline and decreased labor force engagement, differential life course exposure to these harmful work environments may exacerbate racial/ethnic disparities in early retirement due to disability, which has important implications for later life health and wellbeing outcomes. This study uses new data from the Health and Retirement Study (HRS) Life History Mail Survey (LHMS) linked to rich job characteristic data from the Occupational Information Network database (O*NET) to characterize lifetime exposure to risky and harmful work environments based on levels of physiological and psychological stress. We evaluate differences by race/ethnicity in exposure to multiple risky work environments (e.g., exposure to contaminants), examine whether they relate to disability retirement, and explore whether these associations differ by race/ethnicity. We find that there are large racial/ethnic differences in both the likelihood of disability retirement and lifetime exposure to risky work environments. Moreover, findings from probit regressions controlling for education and cohort suggest that racial/ethnic differences in disability retirement are partly explained by lifetime exposure to risky work. The findings from this study can help inform work-based interventions targeted at improving the lives of workers in “bad jobs,” thereby potentially reducing racial/ethnic disparities in disability retirement and improving overall population health and wellbeing.

Aging

Latina Disparities in Retirement Preparedness Sandra Garcia* Sandra Garcia,

The decreasing rates of pension coverage offered nationwide, failure to enroll in other employer-sponsored retirement plans, and lack of access to retirement plans will leave many older adults with limited options to fund their lives in retirement, most notably women, minorities, and people with low educational attainment. Latinas already continue experiencing higher rates of poverty than other groups, after the age of 65. Most studies fail to disaggregate the experience of Latinas by coupling their outcome to those of the larger Latino population or other minoritized groups. Fewer studies discuss measures of retirement preparedness beyond the conventional review of financial assets. I hypothesize that my findings will identify intersectional sex/ethnicity differences in retirement preparedness, showing more disadvantage for Latina women. I also hypothesize that non-conventional measures (e.g., self-reported probability of living to age 75, caregiving responsibilities) will have an association with retirement preparedness (e.g., financial assets). The sample will consist of 14,172 adults in Wave 15 of the Health and Retirement Study, which captures information on retirement, physical health, work, and assets. The data oversamples Black and Latino participants. Of the 14,172 people in the Wave 15 sample, 7.3% are Latino Men, 10.0% are Latina women, 25.5% are White men, 34.7% are White women, 8.5% are Black men, and 14.0% are Black women. When conducting an overview of financial assets like pension, earnings, social security, and individual retirement accounts, Latina women consistently have the lowest amount of financial assets compared to other ethnic groups.

Pension
Earnings
Social Security
IRA

Latino Men
$2,006.82
$17,773.97
$5,977.76
$230.94

Latina Women
$1,207.6
$9,427.77
$4,996.51
$175.54

White Men
$9,062.47
$29,404.24
$11,856.66
$3,664.38

White Women
$5,016.30

$14,373.22
$9.961.62
$2,047.76

Black Men
$3,650.33
$21,724.29
$7,060.99
$435.42

Black Women
$3,313.86
$15,128.67
$6,784.18
$439.94

Mortality

Criminal Legal System Interactions and Premature Mortality: A Mediation Analysis among an Urban Black American Cohort Elaine Doherty* Elaine Doherty, Kerry Green, Brittany Bugbee,

For Black Americans, criminal legal system interactions represent life events that are disproportionately experienced due to racist policies and practices, such as overpolicing in majority Black neighborhoods and the application of harsher sentences to Black arrestees. Moreover, research has implicated these interactions in accounting for racial disparities in midlife mortality. While documenting between-race disparities is important, a sole reliance on between-group scholarship ignores the variation in how criminal legal system involvement influences interpersonal experiences, health behaviors, and other drivers of mortality risk among Black Americans. In this study we build upon our prior findings that show a robust two-fold increase in mortality among arrested young adults and examine the pathways through which criminal legal system involvement increases midlife mortality risk, testing substance use involvement, social connections, and economics as mediators. We use interview, census, criminal justice, and National Death Index data across 50 years of the life course from a single cohort of Black children from Woodlawn, a neighborhood in Chicago first assessed in 1966 (N=1,242; 49% male, 21.3% dead by 2021). Preliminary regression results show that that those with criminal legal system involvement are at increased risk of midlife social and behavioral consequences, such as substance use behaviors and disorders, low social connectedness, unemployment, and poverty status (ps<.05), all of which significantly predict subsequent mortality (ps<.05). Moreover, preliminary evidence indicates that these midlife domains partially mediate the relationship between young adult arrest and premature mortality. A full account of the findings will illuminate how interactions with institutional forces, such as the criminal legal system, drive mortality risk among urban Black Americans, which is crucial to inform efforts aimed at reducing racial mortality disparities.

Race/Ethnicity

Association between county-level aggregate anti-Black implicit bias and Black youth suicides in the US Parvati Singh* Parvati Singh,

Persistent exposure to racism may increase risk factors for suicide among Black populations, and particularly among Black youth. Structural racism shapes societal attitudes and policies, which, in turn, may contribute to the development of implicit biases against minority groups, corresponding with a vicious feedback loop of social priming and bias reinforcement. Aggregate-level implicit anti-Black bias may thus represent one aspect of structural racism that permeates multiple systems and processes, placing Black populations at a continuous disadvantage. Whereas individual-level implicit bias reflects personal attitudes and prejudices, aggregate-level implicit anti-Black bias may offer a more comprehensive measure of structural racism and anti-Black discriminatory attitudes. We examined whether and to what extent, county-level aggregate implicit anti-Black bias scores (exposure) correspond with suicides among Black youth populations (outcome) in the US. We used longitudinal county-level data on aggregate implicit anti-Black bias (retrieved from the Project Implicit database) and suicide deaths among Black youth aged <25 years across all US counties (from CDC's Restricted Use mortality database) over an 18 year period spanning 2002 to 2019 and examined within-county variations in the patterning of Black youth suicide mortality in relation to aggregate scores of implicit anti-Black bias. County-level two-way fixed effects Poisson regression analyses controlled for several socio-structural factors (e.g. poverty, income, health insurance) that may confound the relation between the exposure and outcome. Analytic results indicate 1.6 additional suicides among Black youth per unit increase in within-county aggregate implicit bias scores ($p < 0.001$). Our national, ecological study may contribute to current knowledge by providing the first large-scale evaluation of the association between aggregate implicit anti-Black bias scores and suicides among Black youth populations.

Mortality

The Changing Landscape of Firearm-Related Mortality Among Black Youth: Examining County-Level Predictors by Urbanization ALLISON LIND* ALLISON LIND, Susan Mason, Elizabeth Wrigley-Field,

Background: An unprecedented rise in all-cause mortality in children and adolescents ages 1-19 (“youth”) in the United States is driven by an increase in firearm-related deaths. Black youth are disproportionately affected. Historically, youth firearm-related mortality has shown racial and geographic patterns, with Black urban youth primarily affected by firearm-related homicides, and White and Native rural youth by firearm-related suicides. Recent findings, however, reveal a shift. Black rural youth have experienced sharp increases in firearm-related mortality. Their firearm-related mortality rates are now on par with their urban counterparts.

Objective: We aim to investigate county-level predictors of Black youth firearm-related mortality by urbanization.

Methods: We leverage CDC restricted mortality data from 1999-2022 for our study. Our outcome of interest is youth firearm-related deaths, defined using ICD-10 codes. We define race/ethnicity as non-Hispanic Black. County urbanization classifications are defined as population <50,000 rural & ≥ 50,000 urban. We link youth firearm-related deaths to county-level demographic information from the American Community Survey (ACS). We examine county-level predictors of youth firearm mortality, including Area Deprivation Index (ADI), income inequality, and measures of structural racism.

Results: We hypothesize that the most socioeconomically disadvantaged counties bear the highest burden of Black youth firearm mortality across rural and urban settings. We anticipate that firearm-related deaths among Black youth will be more prevalent in counties with higher structural racism, although the specific indicators may differ by urbanization.

Significance: Rising youth mortality in the United States, driven by firearms, is a public health crisis. Black youth are disproportionately affected. Understanding the unique contributing factors in rural and urban environments is vital for crafting targeted and effective interventions.

Mortality

Increasing Maternal Mortality Rates at the intersection of Race, Medical Care, and Employment Tori-Ann Haywood* Tori-Ann Haywood,

In 2023, the United States ranked last among high-income countries for maternal mortality. The steady increase of U.S. maternal mortality rates in the last two decades has been accompanied by large and growing disparities in those rates across racial/ethnic groups. Although these troubling trends and disparities have raised concerns among healthcare practitioners, health researchers, and policymakers, there is limited consensus on how to effectively address the issue. The popular narrative has placed the responsibility on the individual, but it fails to incorporate the role of national and state policies that influence people's access to proper health care before and during pregnancy and childbirth. It also ignores non-medical explanations for maternal mortality among working-age adults, such as the lack of universal parental leave in the U.S. labor market. The federal level family leave policy only applies to a subset of the American population, leaving the rest up to state policies or employers. These inconsistencies in access to obstetric care and parental leave may contribute to the increase in maternal mortality. This empirical analysis will show results of studies examining key explanations for the possible increase in maternal mortality, such as mistreatment during pregnancy and childbirth, and the built environment. The results show that since 2018 maternal mortality in the US has steadily increased for all race-ethnic groups. The maternal mortality rate in 2018 for non-Hispanic (NH) black women was almost three times higher than that for NH white and Hispanic women and increased steadily by 2021. Drawing on the empirical findings, this study proposes several policies that may be effective in reversing the troubling trends, such as chronic stress due to racism in healthcare, education of both healthcare providers and patients, consistent access to healthcare and parental leave in the labor market.

Health equity

Investigating Social Factors to Improve Healthcare Outcomes and Life Expectancy in the Behavioral Health Population Jenny Bernard* Jenny Bernard, Nida Ali, Victor Carrillo, Carmen Luna, Jazmin Cascante, Themba Nyirenda, Chinwe Ogedegbe,

Background:

The National Center for Health Statistics discovered that 40% of Americans suffered from behavioral health (BH) symptoms in 2020, up from 11% in 2019. These BH trends were associated with hospital readmissions which were disproportionately higher in lower socioeconomic groups. The First Thirty program was associated with a reduction in hospital readmissions for patients from marginalized communities with BH diagnoses who were getting discharged from these 10 hospitals across New Jersey.

Intervention Detail:

The care coordination workflow used in the program focuses on five keys: care coordination, access to medications, discharge phone calls, transportation, and a wellness package. The interventions were determined based on the findings from the needs assessment, which included transportation accessibility, insufficient social support, difficulties obtaining medication, initiation of a care plan, and language barriers. An individualized evidenced-based plan of care was formulated to meet the specific needs of the patients.

Outcomes and Impact

A multivariable analysis conducted for 2022 vs. 2023 indicated that the pre vs. post-enrollment were significantly associated (P<.0001) with reduced risk of readmission within 30-days. Compared to 2022, enrollment in 2023 was independently associated with 62.4% reduced odds of being readmitted within 30-days (odds ratio=0.376; 95% CI 0.307 to 0.460; P<0.0001). This is a significant reduction in the BH hospitalized population. Compared to the pre-enrollment period, the post-enrollment period was independently associated with 71.9% reduced odds of being readmitted within 30-days (odds ratio=0.281; 95% CI 0.221 to 0.357; P<0.0001).

Uniquely Innovative:

This project is innovative through its holistic approach which integrates medical care with solutions for SDoH, with an emphasis on culture competency, targeted education, language congruence, health literacy, leveraging existing resources and support networks.

Structural factors

Neighborhood-level measures of Structural Racism and Severe Maternal Morbidity among Black Birthing People Elleni Hailu* Elleni Hailu, Mahader Tamene, Corinne Riddell, Suzan Carmichael, Mahasin Mujahid,

Background: Drivers of persistent racial/ethnic inequities in severe maternal morbidity (SMM) are poorly understood. This study sought to understand how measures of structural racism may shape SMM risk among Black birthing people.

Methods: We used data on live hospital births from California between 1997 and 2019 (N=537,831). Neighborhood (census tract) measures of structural racism, obtained from the U.S. Census and the American Community Survey, were calculated as ratios of Black-to-White population proportions in employment, education, poverty, and income, and categorized into quartiles (Q1-Q4). To assess the relationship of each domain with SMM, we used logistic regression with a random effect for census tract and controlled for individual level sociodemographic characteristics. We then used Latent Class Analysis (LCA) to characterize 3 structural racism typologies and examined their link with SMM.

Results: Black birthing people living in neighborhoods with high (Q4) Black-White inequity in unemployment (Odds Ratio (OR)=1.12, 95% Confidence Interval (CI): 1.03, 1.22), poverty (OR=1.17, 95% CI: 1.07, 1.28), educational attainment (OR=1.10, 95% CI: 1.02, 1.19), and income (OR=1.13, 95% CI: 1.06, 1.20) had higher odds of SMM, compared to those residing in neighborhoods with low (Q1) inequity in those domains. Associations revealed a gradient, whereby risk of SMM increased as level of structural racism increased. LCA models showed that on average, type 1 neighborhoods were slightly more likely to have greater Black-White inequity across domains, and Black individuals residing in those neighborhoods had higher adjusted average probabilities of SMM than the two other typologies specified.

Conclusions: Our findings indicate that neighborhood measures of structural racism may be linked with adverse outcomes among Black birthing people and contribute to the growing literature on quantitatively evaluating structural racism and assessing its impact on health.

Structural factors

Racism, Wealth, and Health: Introducing a Reparative Health Justice Framework Marie-Fatima Hyacinthe* Marie-Fatima Hyacinthe, Shannon Whittaker,

There is a strong body of work examining the relationship between racism, wealth, and health in the United States. In recent years, some scholars have investigated the potential impact of reparations payments on Black health (Himmelstein et al., 2022; Richardson et al., 2021) . One such exploration (Whittaker et al., forthcoming) found that while monetary reparations would improve the self-reported health of Black people, their health status would still not reach that of white people.

This presentation explores this finding and proposes that while monetary reparations are important, they are not the entirety of what is needed to address the harms of racism. The presenters will draw from interdisciplinary concepts such as racial capitalism and abolitionist theory to explain their reparative health justice framework, which situates monetary reparations as one necessary element of health justice, alongside measures that work toward racial, economic, gender, and environmental justice. This presentation will discuss the theoretical underpinnings of a reparative health justice framework, as well as suggest ways that public health scholars can incorporate this framework into their work.

Health equity

Racialized economic segregation as a county level risk factor for overdose mortality: an analysis of 3,133 US counties, 2015-2020 Samantha Doonan* Samantha Doonan, Spruha Joshi, Magdalena Cerdá,

Background. Overdose mortality contributes to declining US life expectancy. Income inequality and racial segregation predict county overdose risk. However, these may not fully capture the risk of segregation that is both racialized and economic. **Methods**. The Index of Concentration at the Extremes (ICE) was used to measure county structural dis/advantage based on income (ICEincome), Black and white residential segregation (ICErace), and racialized economic segregation (ICErace-income). Scores can range from -1 to +1. For ICErace-income, +1 denotes all residents identify as non-Hispanic (NH) white in the >80th income percentile, -1 denotes all residents identify as NH Black in the <20th income percentile. A Poisson Bayesian spatiotemporal approach was used to model ICE quintiles on the count of total overdose deaths for 3,133 US counties, 2015-2020 (National Vital Statistics System). Models controlled for county population size and density, proportion male, age distributions, all-cause deaths, proportion of state drug seizures that contain fentanyl, and included state and year fixed effects, county spatial and non-spatial random effects, and a county-year random effect. **Results**. Counties with the highest structural disadvantage due to racialized economic segregation had 1.20 (95% Credible Interval (CI): 1.12-1.28) times the overdose mortality risk of counties in the quintile with the most structural advantage. Counties with the highest concentration of people in the <20th income percentile had 1.24 (1.15-1.34) times the risk of counties with the highest concentration of wealth. Counties with the highest percent of Black residents had 1.18 (1.08-1.29) times the risk of counties with the highest percent of white residents. **Conclusion**. Racialized economic segregation is a county risk factor for overdose mortality. Tailored interventions to reduce overdose risk in areas with high levels of racialized economic segregation may positively impact overdose trends.

Structural factors

Structural gendered racism and premature mortality in the United States Taylor Riley*
Taylor Riley, Jaquelyn L. Jahn, Anjum Hajat,

Structural gendered racism, which is the totality of interconnectedness between structural racism and sexism, is a fundamental cause of health inequities among women of color. Most measures of structural racism and sexism include separate indicators that are reflective of social determinants of health, such as the ratio of poverty or incarceration rates between the Black and White populations of a state. However, these capture spatialized outcomes of structural racism and sexism separately, rather than how these co-constituted systems of oppression are interconnected and embedded in state laws. Thus, this study aims to examine how state laws align with a state-level multidimensional measure of structural gendered racism and how these combined state contexts shape inequities in premature mortality. We will first obtain state laws from Agenor et al.'s database of structural racism-related state laws and conduct additional policy surveillance to identify structural sexism-related laws. We will then use latent class analysis to identify how states cluster based on these laws. We will then compare those classes to a latent class multidimensional measure of structural gendered racism (Riley et al, under review) which was derived from state-level indicators of racialized inequities between Black women and White men from the American Community Survey, Vera Institute of Justice, and the National Conference of State Legislatures. State-level classes of laws and racialized inequities will be compared and linked to mortality data from the National Center for Health Statistics. We will then use the "three step" method which adjusts for uncertainty in class assignment to assess associations between these state-level latent classes and premature mortality by racial and gender subgroups.

Migration

Contextualizing Immigrant Health Trajectories Across the Life Course Fatima Touma* Fatima Touma,

Immigrants in the United States are generally healthier than their U.S.-born counterparts. However, there is evidence that this health advantage might erode with increasing time in the United States. Yet, the erosion of the immigrant health advantage does not necessarily unfold in the same way for all immigrant groups. Moreover, immigrants are a heterogenous group whose incorporation into American society may vary widely across geographic contexts. In this study, I aim to examine immigrant and U.S.-born individuals' health trajectories across state-level structural xenophobia contexts in the United States. Structural xenophobia, I argue, is a facet of structural racism that is most salient to immigrants. Structural xenophobia refers to the ways in which laws, policies, social institutions, and social norms combine to exclude immigrants from and prevent their incorporation into the host society. Specifically, my research questions are: (1)Do the health trajectories across the life course of foreign- and U.S.-born individuals differ across structural xenophobia contexts? and (2) Do race-ethnicity and gender moderate the relationship between structural xenophobia and the health trajectories of foreign- and U.S.-born individuals? Using data from The National Longitudinal Study of Adolescent to Adult Health, Waves I to V, and latent growth curve models within a Structural Equation Modeling framework, I examine the self-rated health, body mass index, and allostatic load trends of foreign- and U.S.-born respondents from adolescence to early midlife (age 12 to 43). Preliminary results indicate that foreign-born respondents retain a health advantage compared to U.S.-born respondents across the early life course, albeit differing across racial-ethnic and gender groups. The results from this study will help us better understand if welcoming and exclusionary state contexts are associated with improving, maintaining, or declining health as foreign- and U.S.-born individuals age.

Infants/children/youth

Understanding the impact of county immigration climate on birthweight among immigrant birthing people across restrictive and supportive federal and state immigration policy climates Margot Moinester* Margot Moinester, Kaitlyn Stanhope,

Study Motivation

Over the past two decades, state and local governments across the United States as well as the executive branch have actively engaged in immigration policymaking with significant implications for the health and wellbeing of immigrants and their families. Extant research has largely focused on the health effects of the state immigration policy climate, generally ignoring shifts in federal and county policy climates. Our goal was to quantify the effect of county immigration policy climate on birthweight and determine whether the effect was modified by overarching state or federal climate among foreign-born birthing people, 2012-2020.

Data and Methods

We used data from the U.S. restricted use natality files, 2012 to 2020, linked to county- and state-level characteristics using resident county and birth year. We capture the state and county immigration policy climate annually using the state and county Immigration Climate Indices (state ICI; county ICI), divided into quartiles and tertiles, respectively. We measure the federal immigration policy climate as a binary indicator capturing Obama's (2012-2015) vs. Trump's presidency (2016-2020). We fit multivariable linear models including random effects for state, controlling for parity, age, insurance, race/ethnicity, year, county rurality, poverty, percent foreign-born, percent unemployed, percent with a high school education, and percent of households below federal poverty level. We examined potential effect modification by state or federal climate by including multiplicative interaction terms. We also fit stratified models restricted to Latine or Asian immigrants to determine race/ethnicity-specific effects.

Preliminary Results

We included 6,033,418 births to foreign-born birthing people. We found no overall evidence of an effect of county immigration climate on birthweight (adjusted beta, restrictive v. neutral: -1.2, 95% CI: (-3.6, 1.3); supportive v. neutral: -0.3 (-2.2, 1.7)) In states with the most supportive immigration policy climates, living in a county with a restrictive policy climate was associated with lower birthweight (-6.8, 95% CI: (-10.2, -2.9)) and living in a supportive county was not associated with birthweight (-2.3 (-5.3, 0.6)). In the most restrictive states, county climate was not associated with birthweight. There was no evidence of effect modification by federal policy climate (Trump/Obama). We find similar patterns of effects among Latine and Asian immigrants, though the effects for Asian immigrants are attenuated and less precise.

Conclusions and Next Steps

These results do not support the hypothesis that county climates can buffer against restrictive state or federal climates. However, they do support the role of counties in impacting immigrant health, possibly uniquely through passing restrictive policies in supportive states. Next, we plan to match counties with acute policy shifts to counties that remained neutral to estimate potential causal effects.

Migration

Deportation Fear and its Consequences for Chronic Stress Khoi Ngo* Margot Moinester, Ariela Schachter,

Research shows that deportation fears can operate as a chronic stressor with implications for the physical and mental health of immigrants and their families. Most work focuses on deportation fears and their consequences among undocumented Latinx individuals. Yet new research suggests that other groups less targeted for deportation, including Asian noncitizens and Latinx permanent residents and citizens, also fear deportation. We ask: how robust is the relationship between deportation fears and chronic stress and for whom?

Drawing on a novel, nationally representative survey of 11,117 first- and second-generation Latinx and Asian adults, we document a strong link between deportation fears and chronic stress among individuals who both are and are not directly targeted by the enforcement system. We further show that the relationship between deportation fears and chronic stress is not explained by self-reported exposure to the enforcement system nor perceptions of enforcement in one’s local community, suggesting that deportation fears and their consequences, once established, may not be alleviated by later reductions in enforcement. Indeed, we find that deportation fears are more consequential for the chronic stress of US-born citizens than legally precarious noncitizens, highlighting how fear impacts health and wellbeing regardless of one’s underlying risk of deportation. Together, these results shed new light on the direct and spillover effects of the deportation system and the potential durability of these effects in a shifting enforcement climate.

As a next step, we will expand this analysis to test whether the relationship between deportation fears and psychological wellbeing is robust across a range of mental health-related outcomes. We will also conduct additional analyses to examine the unexpected finding that deportation fears are more consequential for US-born citizens’ chronic stress than some other legal status groups.

Migration

Immigration-Related Sanctuary Policies and Type 2 Diabetes Medication Prescriptions Among Community Health Center Patients Salome Goglichidze* Salome Goglichidze, Wanjiang Wang, Louisa H. Smith, David Ezekiel-Herrera, John Heintzman, Miguel Marino, Jennifer A. Lucas, Danielle M. Crookes,

Immigrants in the United States are at increased risk of diabetes-related complications due to worse management of the disease compared with the US-born. While immigration-related federal policies may support immigration enforcement activities and restrict some immigrants' access to health insurance and other publicly funded resources, state and county-level sanctuary policies may mitigate the effects of these enforcement activities by increasing access to locally funded resources, especially for undocumented immigrants. Additionally, sanctuary policies may reduce the fear of deportation and increase mobility in the community, affecting the accessibility of essential pharmacological treatment for patients with type 2 diabetes. This retrospective cohort study compares the odds of receiving type 2 diabetes medication prescriptions between different county-level sanctuary policy environments (94 sanctuary vs. 61 non-sanctuary counties). The county's sanctuary status is determined based on seven policies as of 2017, where counties with < 3 policies are identified as non-sanctuary and ≥3 policies as sanctuary counties.

We analyze the electronic health records for adult patients (n=16,657) with type 2 diabetes seen in 236 different clinics within a multistate network of community health centers between 2017 and 2019. After accounting for patient and clinic-level random effects and adjusting for confounders, we find that compared with the patients residing in non-sanctuary counties, patients in sanctuary counties were more likely to get prescribed type 2 diabetes medications during the study period (OR = 1.60; 95% CI: 1.20 – 2.12). Furthermore, additional county-level sanctuary policy in place is associated with 7% higher odds of getting prescription (95% CI: 1.03 – 1.12). This study provides early evidence about sanctuary policies as potential determinants of adult type 2 diabetes patients' health.

Migration

Lasting Consequences of the Mexican Repatriation Era for Older Adult Health in the U.S.

Alicia Riley* Alicia Riley,

What is formally known as, “The Mexican Repatriation” was a U.S. government-sponsored program of mass expulsion of at least 400,000 Mexican and Mexican American people living in the U.S. that occurred during the Great Depression and continued through 1939. Prior evidence documents economic ramifications of the forced deportations for U.S.-born workers who stayed in heavily-impacted counties. However, no research has investigated potential health impacts that resulted from exposure to this case of mass deportation, for both Mexican-ancestry households and non-Mexican households who stayed in the U.S. This study assesses the long-term health consequences of indirect exposure to racialized exclusion and violence during childhood on health in later life, using the number of Mexican deportations/relocations in one’s childhood county of residence as the exposure variable and self-rated physical health, disability, and cognitive function in later life as the outcome variables. Using restricted data from the Health and Retirement Study linked to the 1940 Census and IPUMS data from the 1930 Census, I test the hypothesis that older adult males who lived in a county with greater intensity of anti-Mexican intimidation and deportations during the Mexican Repatriation era in childhood will have worse health in older adulthood. I include a sensitivity analysis that employs county access to a railway as an instrumental variable for intensity of deportations. My results will help clarify the potential for historic racist violence to have lasting consequences for population health. Findings will also be relevant to looming threats of mass deportation in the current political climate.

Place/Communities

Spatial Imaginaries and Community Health: Breathing new life into research on place-based racism and health Rebekah Cross* Rebekah Cross,

Background: Despite increased efforts to understand and reverse racial health inequities in the United States, Black Americans continue to face increased risk of physical disability and premature death across the life course. There is a growing body of evidence that racism explains these persistent inequalities with the most popular measures being place-based. Placed-based measures of racism are common because inequities often map on to geographic patterns. However, such measures fail to implicate processes, policies, or practices that maintain racial health inequities. To study how structural racism takes place, scholars must shift their thinking from the arrangement of people in space to processes that produce racialized outcomes.

Objective: Drawing from and building on George Lipsitz’ concept of the “white spatial imaginary,” this presentation offers population health researchers four mechanisms to better understand and study how the racialization of space produces racial inequities in health. Operationalizing these policies and practices might yield new insights for population health researchers and policy makers interested in achieving racial health equity.

Summary of Arguments: In this presentation, I argue that structural racism can be conceptualized differently by exploring how space is imagined, managed, and made (in)accessible to different people. (1) First, when institutions act as urban developers, they prioritize land uses that are profitable over those that benefit local community members. (2) Second, when public services and public spaces are privatized, resources are hoarded among wealthy individuals, families, and corporations. (3) Third, when institutions adopt policies criminalizing poverty, poor Black and Brown people have more interactions with the criminal punishment system. (4) Finally, when institutions take advantage of Black and Brown communities through predatory debt, they do so at the expense of community health.

Place/Communities

Public Health Frames, Stigma and Imagery in Coverage of Homelessness Encampments: A Content Analysis of Local TV News Coverage in the Twin Cities Yusra Murad* Yusra Murad, Quin Nelson, Muna Hassan,

In December 2023, the City of Minneapolis declared unsheltered homelessness a public health crisis, citing sharp increases in rates of homelessness and addressing the growing presence of encampments given the absence of housing solutions. Local television news is a key avenue through which the public absorbs information about health-related issues, and has several functions in shaping policies, actions and investments. Present literature suggests framing of homelessness in national news coverage reinforces negative perceptions of people experiencing homelessness, reducing the impact of advocacy efforts and minimizing support for policy levers intended to address this crisis. Using content analysis methodology, this study examines local TV news stories about homelessness and encampment sweeps, to identify how causes and solutions are presented; if and where “public health” is evoked; and the role of imagery, sourcing, and exemplars to influence viewer perception. We use data from four predominant local stations (KMSP, KARE, KSTP, and WCCO) airing between July-December 2023. Preliminary results indicate that against the backdrop of dozens of sweeps over the same period, local coverage emphasizes interpersonal consequences of homelessness over structural causes or solutions. TV segments about homelessness pull crime to the foreground, positioning police, property owners, business owners, and “concerned neighbors” as experts on homelessness, and people experiencing homelessness are rarely shown outside of stigmatizing depictions of their environment. Coverage almost never addresses health outcomes, public health, or health equity – public health is primarily evoked in narratives positioning encampments as a threat to “health and safety” of neighbors. These frames have implications for local consensus on the causes of encampments and potential responses, especially for policymakers, advocates, and journalists concerned with how public health is framed in this context.

Race/Ethnicity

Sundown Towns, Structural Racism, and Inequities in birth outcomes in Iowa Leia Belt* Leia Belt,

Background/Significance:

Sundown towns, regions historically recognized for systematically excluding African Americans post-emancipation often persisting into the 20th century, underscore a crucial yet neglected aspect of racial relations in the United States. Similar to the Homeowners Loan Corporation (HOLC) Redlining maps of the 1930s, sundown town practices represented a deliberate and violent strategy to maintain a strict racial caste system and enforce residential segregation. Particularly prevalent in the rural Midwest, these territories serve as pivotal case studies for exploring the nexus between structural racism, rural demographics, and inequities in health.

Data/Methods:

The research adopts an interdisciplinary, mixed-methods approach that includes: 1) a descriptive case study of sundown towns in Iowa; 2) the introduction of a conceptual framework designed to examine the connections between degrees of exposure to sundown towns, the legacy of structural racism, and health outcomes; and 3) the use of logistic regression model to explore the relationship between a nuanced, multi-dimensional measure of exposure to sundown towns and birth outcomes in a rural Midwestern setting.

Preliminary Results:

The History and Social Justice Project Sundown Town Database hosted by Tougaloo College’s, identified 48 locations in Iowa as being possible, probable, or confirmed sundown towns. Out of Iowa’s 99 counties, established by 1871, 35% (n=35) contained such towns, while 65% (n=64) did not. Regarding zip codes (n=968), 23 were identified as either being in a sundown town or adjacent to one, 25 were directly in a sundown town, 298 were adjacent to a sundown town, and 620 were neither in nor adjacent to a sundown town. An analysis of birth certificate data from the Iowa Department of Public Health from 2006-2022, reveals a complex relationship between exposure to sundown towns at the zip code level and birth outcomes. This analysis shows mixed effects on birth outcomes, with a significant increase in the risk of adverse outcomes for individuals racialized as Black and Indigenous.

Conclusion:

This research underscores the importance of a mixed methods, interdisciplinary methodological framework that enables public health researchers to thoroughly investigate racism’s central role in perpetuating racial inequities in health.

Structural factors

“Care, Not Cops”: Exploring the Demands of Anti-Carceral Organizers and the Role of Public Health Marie-Fatima Hyacinthe* Marie-Fatima Hyacinthe,

Public health scholarship demonstrates that carceral systems (such as policing, prisons, jails, and detention centers) have negative health impacts (American Public Health Association, 2018; American Public Health Association Governing Council, 2020). Additionally, research shows how the racist nature of policing in the United States (U.S.) contributes to racial health inequities (Haile et al., 2023). Outside of academia, one of the significant demands of the 2020 racial justice uprisings in the U.S. has been to defund police and subsequently reallocate funds to public health systems, therefore framing public health as an alternative to carceral systems (Brooklyn Movement Center, 2022).

However, the United States’ historical and current values around capitalist productivity and race and gender norms influence both carceral systems and public health such that the two systems have often functioned together, particularly when delineating certain populations as inherently deficient, unhealthy, or criminal.

In this presentation, I will explore the relationship between carceral systems and public health by tracing the origins of the demands to divest from carceral systems and invest in public health. Through a systematic mapping review and archival research, I synthesize themes from academic papers and archival sources from organizers and advocates. The result is a conceptual model that proposes principles and methods for public health scholarship, advocacy, and policy that is divorced from carceral logics and might serve as an alternative to carceral systems.

Chronic disease

Feasibility of a novel coaching intervention to optimize cannabis use for Veterans with chronic pain Jennifer Eckersley* Jennifer Eckersley, Anne Arewasikporn, Gabrielle Bowyer, Daniel Clauw, Dana Horowitz, Catherine Klida, Vivian Kurtz, Evangelos Litinas, Jenna McAfee, Poonam Purohit, Mia Railing, Tristin Smith, Laura Thomas, Riley Wegryn-Jones, David Williams, Kevin Boehnke, Amy Bohnert, Rachel Bergmans,

Background: Veterans have a higher rate of chronic pain than nonveterans, which is a risk factor for suicide-related outcomes and opioid use. Due to the limited efficacy and adverse effects of conventional treatments, Veterans are increasingly using cannabis to manage their chronic pain. However, the general lack of knowledge concerning cannabis may be a barrier to effective use and harm reduction. Thus, we conducted a pilot study of a coaching intervention aimed at optimizing cannabis use for chronic pain among Veterans. **Methods:** The development of the coaching intervention drew from the scientific literature, clinical cannabis experts, Veteran perspectives, and motivational interviewing methods. Participants were Veterans with chronic pain who were using or interested in using cannabis for their pain symptoms. Participants received up to 4 remote coaching sessions via videoconferencing with a trained medical cannabis coach. We assessed feasibility and efficacy on pain symptoms 12 weeks after baseline. **Results:** Of 22 consented participants, 77% completed the full protocol. Among those who completed at least one coaching session, 87.5% were very or completely satisfied with the intervention, and 81.3% rated the intervention as very or extremely helpful. There were no related adverse events. At the end of the intervention, 63% of participants reported a clinically significant improvement overall. Participants also reported decreased pain intensity ($p=0.01$), pain interference ($p<0.01$), and anxiety ($p=0.62$) at the end of the intervention relative to baseline. However, sleep disturbance increased ($p=0.33$). **Conclusion:** Participants were satisfied with the coaching intervention and reported improvements in pain symptoms, which justifies the need for testing its efficacy in a larger sample of Veterans as intended in an upcoming trial (target n=468). This motivational interviewing coaching approach may be useful for chronic pain treatment plans that include cannabis.

Chronic disease

Cardiovascular Multimorbidity Progression and Life Expectancy Among U.S. Medicare Beneficiaries with Diabetes Mellitus Isa Granados* Jay Lusk, Emily O’Brien, Michael Greene, Robert Mentz, Stephen Greene,

Background: With increasing worldwide prevalence of diabetes, managing cardiovascular complications of diabetes will be of paramount importance to promoting healthy longevity. Prior large-scale studies have evaluated the relationship between diabetes and composite incidence of cardiovascular disease but have not deconstructed progression pathways and assessed cardiovascular multimorbidity.

Methods: A 5% sample of Medicare beneficiaries from 2010-2019 were included in the study. Multistate survival models and the Stochastic Population Analysis for Complex Events program were used to evaluate the association between diabetes mellitus and development and progression of cardiovascular multimorbidity (defined as >1 major CVD condition, inclusive of myocardial infarction, coronary artery disease, stroke/TIA, heart failure, and atrial fibrillation) as well as associated life and health expectancy. Models were adjusted for medical comorbidity burden, age, sex, race/ethnicity, and Medicaid dual eligibility.

Results: A total of 2,189,382 patients were included in the study, of whom 585,910 (27%) had a history of diabetes (median age 70, 55% female). Before adjustment, patients with diabetes had higher hazards for development of multimorbidity from a state of baseline health (HR 2.29, 95% CI 2.20-2.38), and development of multimorbidity after initially having only one cardiovascular disease (HR 1.17, 95% CI 1.16-1.18). After adjustment, patients with DM had higher hazards of developing multimorbidity from a state of baseline health (HR 2.04, 95% CI 1.96-2.13) and of developing multimorbidity after initially having only one cardiovascular disease (HR 1.16, 95% CI 1.15-1.17). Life and health expectancies were reduced for patients with diabetes compared to patients without diabetes.

Discussion: Diabetes may be a major risk factor for the development of debilitating cardiovascular multimorbidity. Strategies to limit multimorbidity accumulation should be aggressively pursued in this population.

Chronic disease

The end of progress in declining rates of cancer mortality: can populomics help renew the fight? Quinn Valier* Quinn Valier,

Colorectal cancer (CRC) is the second leading cause of cancer-related death in the US. Like other common cancers, yearly diagnoses are on the rise. In January 2024, the American Cancer Society reported that for the first time ever new cancer cases in the US would exceed 2 million. In the case of CRC, people are being diagnosed younger, and younger people are dying more often due to their disease. Screening guidelines have shifted with these trends, and the age-limit at which routine screening is recommended was recently lowered from 50yrs to 45yrs. Colonoscopy screening is known to be highly effective in decreasing CRC morbidity and mortality in large part because suspicious polyps and early cancers can be removed during the screening procedure. Historically, however, uptake of colonoscopy has been unevenly distributed across population groups. Empirical studies show stark differences in colonoscopy uptake within and between racial/ethnic groups; between urban and rural populations; and across socioeconomic status – all of which contribute to terrible disparities in CRC mortality.

The great majority of the research on colonoscopy concerns its efficacy and the optimal duration of intervals between procedures depending on findings (presence or absence of polyps, histological profile of resected samples, etc.). There is much less work devoted to who has colonoscopies and who does not. There is evidence to show that access to primary care is positively correlated with adherence to recommended guidelines for preventative care, including colonoscopy, but even here insight is limited. In this presentation I draw together historical trends and the latest questions in cancer mortality. I argue that populomics, specifically in its measures of health-related quality of life and inclusion of consumer health informatics, offers powerful tools to rethink approaches to colonoscopy that might improve uptake across all sub-populations and form the basis of a new phase of progress in fighting cancer.

Chronic disease

Trends in adult arthritis-attributable pain prevalence and contributing risk factors in the United States by state: 2011-2021 Feinuo Sun* Feinuo Sun, Rui Huang,

Previous studies provided some but limited discussions on the geographic variations in arthritis pain outcomes. Most research was based on cross-sectional data for a single year and there is virtually no research on the state-specific developing trends of arthritis-related pain outcomes over time, nor on how risk factors contribute to the trends for different states. This paper provides one of the first analyses of the temporal development of arthritis-related pain outcomes across U.S. states and examines the impacts of risk factors on the development of these outcomes for each state. Based on the Behavioral Risk Factor Surveillance System data, we first estimated state-specific prevalence of arthritis and arthritis-related outcomes including joint pain, severe joint pain, and activity limitation during 2011-2021 across 50 U.S. states as well as Puerto Rico, Guam, and D.C. Then we fitted a series of logistic regression models for each state to evaluate whether there was a statistically significant linear change in the prevalence of these conditions over time, accounting for sociodemographic factors, smoking, and obesity status. The study contributes to our understanding of how arthritis-related pain outcomes develop differently across states, which would be informative to policies and programs on arthritis pain control and prevention.

Preliminary results show that states in the Deep South including Tennessee, Louisiana, and Arkansas experienced increases in arthritis-related joint pain, severe joint pain, and activity limitation during the 10 years. Smoking and obesity contribute to the increases in joint pain and severe joint pain prevalence in most states but usually cannot fully explain the increase. For states with increasing activity limitation prevalence, the increasing trends become insignificant after including smoking and obesity; while the activity limitation decreasing trends are significant for states like California, Florida, Michigan, and New York.

Chronic disease

Estimating Stroke Prevalence In Adults Across 34 US States: Predictive Insights from Social Determinants of Health using BRFSS 2022 Data

MINHAZUL ABEDIN* MINHAZUL ABEDIN, BENJAMIN WALKER, FAZLAY FARUQUE,

Background

Stroke is a major cause of disability and mortality in the US, posing a substantial economic burden on the healthcare system. This study aims to estimate the prevalence of stroke and explore its association with a combined measure of social determinants of health (SDOH) using data from the 2022 Behavioral Risk Factor Surveillance System (BRFSS).

Methods

Data from 34 US states (N=293,078) that used BRFSS SDOH and Health Equity Module were analyzed. A summary measure based on 10 SDOH determinants, aligned with CDC guidelines, was utilized. Bivariate associations between stroke and SDOH were examined using the Chi-square test. Logistic regression, adjusted for covariates, was deployed to estimate stroke predictors with weighted estimates, 95% confidence intervals (CI), and a significance level of $p < 0.05$.

Results

The overall weighted stroke prevalence was 3.6% (CI: 3.4%-3.7%). West Virginia had the highest prevalence (5.6%, CI: 4.9%-6.3%), while Utah had the lowest (2.5%, CI: 2.2%-2.9%). Around 43% were exposed to at least one SDOH, and 26% had multiple exposures to SDOH. Stroke was significantly associated with at least 2 (OR=1.2, CI: 1.1-1.4), at least 3 (OR=1.5, CI: 1.2-1.7), and at least 4+ SDOH (OR=2.3, CI: 2.0-2.7) in the logistic model. Non-Hispanic blacks had a higher risk than non-Hispanic whites (OR: 1.2, CI: 1.0-1.4). Adults aged 45-64 years (OR: 3.9, CI: 3.1-4.7) and 65+ years (OR: 6.8, CI: 5.6-8.4) had significantly higher stroke risk. Ever-married status, lower education levels (<college), and lower-income (<$50,000) also predicted stroke risk.

Conclusion

The SDOH significantly predicts stroke risk in US adults across 34 states. Targeted interventions focusing on SDOH are essential to reduce stroke risk, particularly in vulnerable populations, including non-Hispanic blacks, ever-married individuals, and those with lower socio-economic status. Future national surveys, including BRFSS, should incorporate SDOH modules for all states to address stroke disparities effectively.

Environmental factors

Residential segregation and change in cardiometabolic disease risk: What is the role of the neighborhood environment? Ethan Siu Leung Cheung* Ethan Siu Leung Cheung, David Curtis, Sara Grineski, Yehua Dennis Wei, Ming Wen,

In the United States, cardiometabolic diseases remain the leading cause of mortality in the adult population. Although some literature has highlighted the associations between residential segregation and cardiometabolic disease risk, few studies have utilized the Index of Concentration at the Extremes (ICE) measures when examining neighborhood-based risk of cardiometabolic disease. Furthermore, minimal research has investigated the mechanisms underlying the associations, particularly features of the neighborhood environment. This study examines the association between residential segregation measures and cardiometabolic disease risk. It also investigates the extent to which neighborhood environments (built, social, and natural) explain these relationships. Segregation is defined for census tracts using the ICE measures for income, race (i.e., White relative to Black, Hispanic, and Native American), and race-income. We used two waves of longitudinal data for 2,995 individuals aged 30-84 from the Midlife in the United States (MIDUS) study. Generalized Poisson regressions were utilized to examine the cross-sectional and longitudinal associations between residential segregation and cardiometabolic disease risk, while accounting for area-level poverty rates. Structural equation modeling models are implemented to test the mediating effects of the built, social, and natural environments. Results indicate that ICEincome significantly predicts cardiometabolic disease risk, independent of poverty rates and individual-level covariates. Also, it is suggested that neighborhood walkability attenuates the relationship cross-sectionally, while urban heat effects mediate the longitudinal relationship. Results highlight the importance of creating a walkable neighborhood environment and providing social services to reduce an individual’s risk of cardiometabolic diseases over time, especially for those living in neighborhoods more susceptible to urban heat effects.

Place/Communities

Is gentrification associated with fear of displacement or neighborhood tension among aging adults? Mark Hernandez* Mark Hernandez, Jana A. Hirsch, Anil Kumar, Loni Philip Tabb, Jessica Finlay, Michael Bader, Aleena Bennett, Yvonne Michael, Gina Lovasi,

The impacts of gentrification on neighborhood perceptions and resident wellbeing are complex and varied. We analyzed data from a racially diverse cohort of aging US adults to investigate gentrification and subsequent perceptions of neighborhood change.

In 2023, a subset of participants from the REasons for Geographic and Racial Differences in Stroke study completed questionnaire items to measure perceptions of health-relevant stressors related to neighborhood change over the past 3-5 years (N=3341). Gentrification status was computed from socioeconomic and housing cost changes (American Community Survey from 2008 to 2019). We estimated adjusted prevalence ratio (PR) associations using quasi-Poisson regression.

Participants’ census tracts were categorized as not gentrified (N=1,162; 35%), gentrified (N=261; 8%), intensely gentrified (N=295; 9%), or ineligible to gentrify (N=1,623; 49%). Among all participants, 6% reported that changes in their neighborhood have caused fear of displacement and 15% reported that changes have led to tension or conflict with neighbors. The associations between census tract gentrification status and reported concerns about displacement or conflict were not significant in the full sample. There was a non-significant trend in stratified analyses suggesting intense gentrification may be associated with fear of displacement among long-time residents (PR=1.56; 95%CI: 0.96, 2.45) and Black participants (PR=1.47; 95%CI: 0.88, 2.35).

Our findings will add to the literature on gentrification and health that has had mixed empirical results. Ultimately, by examining neighborhood change perceptions, we advance understanding of the potential stress pathways between gentrification and health.

Place/Communities

Ideal cardiovascular health by housing arrangement across racial/ethnic and sex groups in the United States Bethany Ogbenna* Bethany Ogbenna, Symielle Gaston, DaNashia Thomas, Christopher Payne, Braxton Jackson, Chandra Jackson,

Background: Housing is a social determinant of health that varies by race/ethnicity and sex due to structural racism, which has contributed to the concentrated poverty that disproportionately impacts single-parent households. Housing arrangements (HAs), such as government assisted rental (GAR) housing, are also associated with lower-quality neighborhoods with likely adverse effects on ideal cardiovascular health (ICVH). However, empirical data are sparse.

Methods: Using cross-sectional National Health Interview Survey data pooled from 2012–2018 and 2020 and Poisson regression with robust variance adjusted for sociodemographic and behavioral characteristics, we estimated survey-weighted prevalence ratios (PRs) and 95% confidence intervals (CIs) for associations between HA (GAR housing, unassisted rental (UR) housing, and homeownership) and ICVH. The ICVH score of 7 indicators was dichotomized (yes (7) vs. no (<7)): body mass index (18.5-<25 kg/m2), physical activity (≥150-300 minutes/week or ≥75-150 minutes/week), 7-9 hours/night sleep duration, never/quit smoking >12 months prior to study, no dyslipidemia, no hypertension, or no prediabetes/diabetes. Interaction by race/ethnicity and sex were also tested.

Results: Among 213,690 adults (mean age ± SE 47± 0.1 years; 54% women), non-Hispanic (NH) Black adults were more likely to live in GAR housing (e.g.,14% vs. 3% NH-White). Women in GAR housing had 46% (PR: 0.54; [95% CI:0.45,0.64]) lower prevalence of ICVH compared to women homeowners, while men in GAR housing had 9% lower prevalence, albeit not statistically significant, compared to men homeowners (pHA*sex<0.05). Overall, associations by race/ethnicity did not vary. ICVH was less prevalent among NH-White (PR:0.42) Hispanic/Latina (PR:0.54), and NH-Asian (PR:0.57) women living in GAR housing compared to women homeowners of the same racial/ethnic group (pHA*race/ethnicity*sex<0.05).

Conclusions: Racial/ethnic disparities and sex differences in ICVH by HA were prevalent.

Place/Communities

Disparities in Medical Hardship in Metropolitan and Nonmetropolitan America: An Application of Health Power Resources Theory Michael Caniglia* Michael Caniglia,

Objective: Americans residing in nonmetropolitan areas have experienced patterns of agricultural change, deindustrialization, and outmigration that have made it more difficult for them to access medical care. Yet, limited research has examined nonmetropolitan-metropolitan disparities in medical hardship, characterized here as the delay or avoidance of needed treatment because of cost. I draw upon health power resources theory, a conceptualization of health disparities that emphasizes relational power differences and their contribution to illness, to explore how power imbalances between nonmetropolitan and metropolitan areas may be associated with medical hardship.

Methods: I use data from the National Health Interview Study 2019-2022 (N= 120,698) and implement bivariate and multivariate logistic regression analyses to examine the risk of medical hardship in nonmetropolitan areas relative to metropolitan centers.

Results: In fully adjusted regression models that controlled for basic demographic characteristics, I find that individuals living in nonmetropolitan areas face elevated odds of delaying (OR= 1.14, 95% CI 1.04, 1.26) or avoiding (OR=1.15, 95% CI 1.04, 1.28) needed medical care because of cost. Relative to the rest of the country, disparities are significantly higher in the West, where nonmetropolitan residents travel long distances to access care.

Conclusion: Results underscore the inaccessibility of care in nonmetropolitan areas and suggest heterogeneity in nonmetropolitan-metropolitan medical hardship disparities across the U.S. Findings also highlight the applicability of health power resources theory to the analysis of health disparities across spatial settings.

Aging

Intersectional Inequalities In Life Course Aging Trajectories And Neighborhood Exposures

Richard Patti* Richard Patti,

There is a large body of empirical work on aging, the bulk of which is concentrated on adults in the later stages of life (Durfey et al. 2019; Stover et al. 2007). Differences in aging and health trajectories are often examined on the basis of race-ethnicity, and immigration status, where broad patterns within each of these subgroups provide understanding of the patterns and determinants of aging across the life course (Boen 2020). Evidence has shown that physical and socio-environmental factors serve as key mediators in the aging process, generally as indicated by associations between environmental conditions and markers of aging contemporaneously (Bektas et al. 2018; Wahl, Iwarsson, and Oswald 2012).

I aim to contribute to the research on population aging, racial/ethnic health disparities and immigrant health in three key ways. First, I will examine measures of functional limitation starting in young adulthood in an effort to broaden the understanding of when different aging trajectories begin to take shape. Second, employing a structural intersectionality perspective, I jointly examine, race/ethnicity, citizenship and legal status as intersecting axes of stratification along which health disparities emerge (Brown 2018; Homan et al. 2021; Viruell-Fuentes et al. 2012). Finally, I integrate the large literature on neighborhood effects to assess how neighborhood socio- environmental exposures serve as a social determinant of health in the trajectories of well-being and aging in the population.

Using panel data from the Survey on Income and Program Participation (2014-18), and a series of multi-level growth curve models, I answer two broad research questions: First, how do trajectories of functional disability vary at the intersections of race/ethnicity-citizenship and race/ethnicity-household legal status? Second, how do neighborhood conditions influence these observed aging trajectories across race/ethnicity-citizenship and race/ethnicity- household legal status?

Methodological approaches to studying public health

Examining Within-City Average Life Expectancy Gaps and their Associations with Racialized Residential Segregation across 875 U.S. Cities: A Population and Community Health Equity Metric Anne Vierse* Matthew Lee, Matthew Lee, Isabel Nelson, Ben Spoer, Lorna Thorpe, Marc Gourevitch,

Average life expectancy in the U.S. has declined in recent decades. Life expectancy gaps (LEGs), or LE differences, across demographic groups are especially stark in cities where large populations are concentrated in small geographic areas. We seek to investigate the association between racialized residential segregation (RRS) and LEGs, using data from 875 cities, and to highlight LEGs as a useful place-based health equity metric.

RRS reflects the centrality of “race” and racism in the U.S., is an important correlate of LE and LEGs, and has been previously conceptualized as a fundamental cause of health inequities. We operationalized RRS via the Index of Dissimilarity (ID). ID calculates the percentage of a racial/ethnic group that would need to relocate to achieve an even distribution across city neighborhoods in four racialized group pairings: Asian/White, Black/White, Hispanic/White, and Non-White/White.

We used three models to explore correlations between ID and LEGs: 1) bivariate; 2) multivariate, adding social and economic factors associated with average LE; 3) a further refined multivariate model that restricts LEG to specific racialized groups. The ID-LEG association was positive and statistically significant for all racialized group pairings across models. Magnitudes varied by pairing, suggesting that segregation impacts minoritized groups differently. For example, in the third model, for every 1% point increase in Hispanic/White ID, the LEG increased by 1 month, whereas the LEG increased by 1.1 months for Asian/White ID and by 2 months for Black/White ID.

Our analyses demonstrate that LEGs can be operationalized as a health equity metric, with potential for use by health departments, systems, and researchers in monitoring efforts to eliminate inequities. For example, neighborhoods with highest life expectancy demonstrate what is theoretically attainable for all residents within a city, including those living in neighborhoods with lowest life expectancies.

Methodological approaches to studying public health

Assessing the contribution of obesity to trends in diabetes across U.S. birth cohorts using a causal decomposition approach Rafeya Raquib* Andrew Stokes, Meghan Podolsky, Jennifer Dowd,

Diabetes prevalence has been consistently rising in the US. Concurrently increasing obesity has been theorized as a cause of this increase, but the contribution independent of secular trends in sociodemographic factors has yet to be established. We used a counterfactual causal decomposition model combining the age-period-cohort approach with g-computation to examine how changing body mass index (BMI) distributions across birth cohorts impacted diabetes prevalence. Using data from the National Health and Nutrition Examination Survey (NHANES) III (1988-1994) and continuous waves (1999-2020) (N=33,386), we compared the observed prevalence of diabetes to a counterfactual scenario where all birth cohorts had the BMI distribution of the 1930 birth cohort, using factors including age, sex, race, ethnicity, and education in model development. Diabetes status was measured as Hemoglobin A1c (HbA1c) ≥6.5% or HbA1c <6.5% with self-reported diabetes treatment. BMI was calculated as a lagged variable that combined weight 10-years prior to survey with height at survey to reduce the risk of reverse causality. The prevalence of obesity (BMI 30+) increased from 13.4% (7.6-18.1) in the 1930 birth cohort to 34.9% (22.8-56.5) in the 1975 birth cohort. We found that diabetes prevalence would be on average 2.0 (1.0-3.9) percentage points lower for the 1960 birth cohort and 4.2 (2.7-6.7) percentage points lower for the 1970 birth cohort under the counterfactual BMI distribution compared to the predicted natural distribution. These results suggest that changing BMI distributions caused increases in diabetes prevalence across U.S. birth cohorts, independent of sociodemographic factors. Additional research is needed to elucidate the factors contributing to increases in obesity across birth cohorts, including early life social factors and accumulated exposure to obesogenic factors over the life course.

Health behaviors

Approaches to Intentional Weight Loss Among Adolescents to Young Adults Victoria Sass*
Victoria Sass,

Despite its consensus as a population health problem, there is a robust literature critical of the social construction of obesity as a disease and the implications of its framing as a public health crisis. Specifically, this scholarship has traced the racist origins of anti-fat bias, questioned the legitimacy of obesity as a disease category, shown how stigmatizing a public health framing of "obesity" is to fat folks, and criticized the health approach (and its effects) being proffered by the medical/public health establishments.

While it's true that the history of dieting and intentional weight-loss precedes the official medicalization of obesity, this crucial development implicitly legitimized said behaviors as health-promoting. Despite small-scale and/or clinical studies looking at the effects of dieting on health, there has been no long-term, representative analysis of its physical and mental health implications. However, before we can even begin to understand the effects of intentional weight loss on health, it's important to have a sense of what types of behaviors people are engaging in to lose weight and what, if anything, predicts their engagement with those behaviors. This study seeks to do just that by exploiting a large, nationally-representative, longitudinal dataset (The National Longitudinal Study of Adolescent to Adult Health) to elucidate how weight-loss approaches are distributed within the population and how they've have changed over time.

Using three-step bias-adjusted latent class analysis, preliminary findings suggest that while exercise alone was the predominant mode of weight-loss for wave I, there was a shift toward dieting and other risky methods (i.e. taking laxatives, diet pills, and/or fasting) in waves II and III. Additionally, the number of people engaging in multiple methods for weight loss increased across the waves. With respect to other factors, gender, race, and weight-related self-image all affect class assignment. Future analysis will incorporate social networks and environmental context as additional covariates and will extend the analyses to include subjects interested in weight maintenance and gaining weight.

Chronic disease

Implications of BMI Thresholds for CVD-related Racialized and Gendered Health Disparities Jessica Polos* Jessica Polos,

Obesity is an accepted risk factor for cardiovascular disease (CVD) but is subject to mismeasurement. Body mass index (BMI) is used to define generalized obesity as having a BMI>=30, but it can misclassify people as obese or not obese. BMI also predicts CVD with different accuracy depending upon gender, race, and age and has been criticized for embedding structural racism and sexism as a measure of obesity. For example, BMI tends to misclassify Black women as obese when they are not and misclassifies white women and Asian men and women as non-obese when they are obese. Still, BMI is an easily computed measure of CVD risk, making better understanding the harms or benefits of its use important.

How the use of standard but inaccurate BMI thresholds influences racialized and gendered disparities in CVD-related health risks is unclear. Misclassification as obese may expose individuals to harmful social and medical stigma and weathering, but also to increased preventive medical therapies. Misclassification as non-obese may reduce exposure to stigma and weathering, but also reduce exposure to medical interventions. Thus, structural inequities in BMI as a measure theoretically may reduce or exacerbate racialized and gendered health inequalities.

In this study, I use regression-based standardization to simulate whether changing standard, uniform BMI classification thresholds to alternative race- and gender-based thresholds influences racialized and gendered disparities in CVD-related health outcomes. Using data from the National Study of Adolescent to Adult Health, I assess the relationship between standard obesity thresholds in Wave IV of the study and CVD-related health outcomes and biomarkers (diabetes and hypertension diagnosis; glucose and blood pressure measures) in Wave V. Then, I intervene to change the obesity thresholds to race-and gender-based thresholds and compare outcomes in the intervention groups to those of under the standard threshold.

Methodological approaches to studying public health

A Geospatial Study of Opioid Overdose Risk in Washington D.C Metropolitan Area Hashan Fernando* Hashan Fernando, Adam Spannaus, Anuj Kapadia,

In the last twenty years, there has been a rise in opioid overdose (OD) deaths in the United States with noticeable differences in fatality rates between regions. Identifying high risk areas is a crucial element of any attempt to curtail the opioid epidemic. Simply identifying high risk areas is not sufficient to stop the epidemic, however. To mitigate OD risk, a primary need is to quantify the underlying reasons behind the geographical diversity in overdose rates. In this study, we consider the Social Vulnerability Index (SVI) census variables and their influence on opioid overdose within Washington D.C metropolitan area from the year 2018 in conjunction with CDC WONDER mortality data.

The factors influencing opioid OD fatalities may differ depending on a region's socio-economic characteristics. We have employed feature selection methods to identify a relevant subset of factors contained in the SVI. Using techniques from topological data analysis, we have identified correlations between these subsets of SVI variables and the rate of fatal drug overdoses. Employing methods from TDA, we have identified specific of regions of interest within the Washington D.C metropolitan area in a graph structure. We then incorporated these graphs into a geospatial additive model to quantify the risk of opioid overdose in each county in the Washington D.C. metropolitan area. This work highlights the importance of socio-economic factors in understanding the spread of the opioid epidemic.

Infants/children/youth

The Role of School Closures and Reopening on Children’s Mental Health and Academic Achievement Juan Echenique* Juan Echenique, Brian Elbel, Amy Schwartz,

This paper focuses on understanding how modes of instruction (fully remote vs. hybrid in-person and remote) affected New York City (NYC) students during the reopening of schools after instruction shifted to remote during the spring semester of 2019-20 as a response to the COVID-19 pandemic. Parents/guardians were offered the option of students returning to classes in a blended learning mode (hybrid) or fully remote instruction.

The paper contributes to understanding the long-term implications of COVID-19 restrictions and the role of instruction modalities as determinants for children’s mental health status and academic achievement.

We use a recently established unique longitudinal dataset of individual-level data on all NYC K-12 public school children, combining healthcare usage and educational administrative records. We leverage two sources of variation: the choices of parents for the mode of instruction and the staggered reopening of schools based on the student’s grade. First, we estimate the parents’ preferences for blended learning for the 2020-2021 school year based on demographic characteristics, physical and mental health status, neighborhood infection rates, school infrastructure, and travel time to school. Then, we estimate the effects of attending in person on multiple indicators of mental health status (ED visits, outpatient care, and prescription drugs). Finally, we estimate the impact on students’ outcomes (disciplinary actions, absenteeism, academic achievement, and mental health diagnoses) during the 2021-2022 school year when schools completed their reopening.

Preliminary results show that female middle and high school students attending in person, conditional on the choice to return to school in hybrid mode, have a lower probability of an emergency department visit related to mental health than students in remote instruction.

Race/Ethnicity, Sandwich Caregiving and the Health of US Women Andrea Goodwin* Andrea Goodwin,

More than 11 million Americans make up the growing number of caregivers who care for both older adults and dependent children simultaneously (sandwich caregivers). Previous research suggests there may be increased stress and risk for diminished health behaviors compared to non-sandwich caregivers who only care for an older adult. Cultural norms and expectations may influence racial/ethnic groups of sandwich caregivers differently, affecting the patterns of health seen in this subpopulation. This is especially of interest because previous research has shown that race is associated with health consequences of stress, in which stress manifests physically in individuals of color and mentally in White individuals. Thus, this project evaluates the physical, mental, and general health of US sandwich caregiving women of different racial/ethnic groups to assess if there are disparities in their health.

My study includes women ages 25-74 from the National Study of Caregiving (NSOC). NSOC is a study of family and other unpaid caregivers to participants in the National Health and Aging Trends Study (NHATS), a nationally representative sample of Medicare beneficiaries ages 65 or older. My sample of 728 sandwich caregivers from three pooled NSOC rounds is classified into four ethno-racial groups: non-Hispanic White, non-Hispanic Black/African American (AA), Hispanic, and non-Hispanic Other. Physical health is calculated with a multiple chronic conditions index (0-6). Mental health is measured using a combination of the Patient Health Questionnaire (PHQ-2) and the General Anxiety Disorder Questionnaire (GAD-2). General health is assessed with a self-rated, 5-point scale. I use linear regression models that are adjusted to account for possible explanatory factors. Preliminary findings indicate Black/AA sandwich caregivers display poor physical health, White sandwich caregivers exhibit poor mental health, and Hispanic sandwich caregivers display better health in all three measures.

Aging

Does a social care intervention reduce unmet resource needs among caregivers of people with dementia? Jennifer Makelarski* Jennifer Makelarski, Kristen E. Wroblewski, Emily Abramsohn, Soo Borson, Elbert S. Huang, SuYeon Lee, Stacy Tessler Lindau,

CommunityRx-Dementia (CRxD) is a scalable, IT-based resource referral intervention delivered at the point of care that provides dementia caregivers with information about community resources for common social and caregiving needs. We examined whether knowledge of resources increased and unmet needs decreased among caregivers who received CRxD compared to those who received usual care.

Dementia caregivers (N=343) enrolled 12/20-2/23 were randomized to usual care or CRxD. The intervention included: (1) brief education about common caregiver needs, (2) a list of vetted local resources, and (3) connection to a resource navigator and online resource finder. At baseline, 1 month and 3 months, caregivers were asked if they knew of, and if they or someone in their household needed, any of 14 resource types (e.g., respite care, endo-of-life planning, food). Total resources a caregiver knew about and total unmet needs were calculated. Mixed-effects regression models were fit with treatment arm, time, treatment arm by time interaction and baseline knowledge or needs as predictors.

Caregivers were mainly women (78%), non-Hispanic Black (81%), with an annual household income >$50k/year (64%), and 49% were aged 50-64. At baseline, caregivers in both groups knew of an average of 6 resource types (intervention: 6.1; control: 6.2). Resource knowledge was similar between arms at 1 month, but significantly higher among intervention arm caregivers at 3 months (6.5 versus 5.2, p=<0.01). At baseline, caregivers in both arms reported an n average of 4 unmet needs (intervention: 4.0; control: 4.2); 87% of caregivers had ≥1 unmet need and 65% had ≥3 needs. Caregiver education was the most common need (61%). Total unmet needs were similar between arms at 1 month, but significantly lower among intervention arm caregivers at 3 months (2.8 vs 3.6; p=0.04).

A low-intensity social care intervention for dementia caregivers improves knowledge of available resources and reduces unmet needs.

Reproductive health

“Be the first friend”: Addressing stigma in an adolescent sexual and reproductive health intervention in western Kenya William T. Story* William Story, Yvonne Wanjiru, Sylvia Ambani, Maureen Wanjiru, Abigail A. Lee, Nema C.M. Aluku,

Background: Adolescent pregnancy and childbearing is common in western Kenya. Stigma—societal disapproval based on a disease or condition—is one of the primary barriers to preventing early pregnancy and supporting young people who become pregnant. Stepping Up!—an intervention for adolescents and their parents—aims to delay childbearing in western Kenya by delaying sexual initiation and increasing family planning use. This study explores participants’ perspectives on stigma before and after Stepping Up!.

Methods: The Stepping Up! intervention was implemented in two counties in western Kenya—Kakamega and Uasin Gishu—from November 2022 to March 2023. Following implementation, 16 focus group discussions (FGDs) were conducted in August 2023 with 60 boys and girls (ages 15-24), 17 parents/guardians, and 44 community facilitators. All FGDs were audio recorded with consent, transcribed verbatim, and translated into English. Transcripts were coded in Dedoose and code summaries were developed to identify themes related to stigma.

Results: Prior to Stepping Up!, participants noted that unintended pregnancies were associated with prostitution and young pregnant women were ostracized from the community. Further, youth who sought SRH services were presumed to have a sexually transmitted infection (STI). After the intervention, participants agreed that young pregnant women should not be blamed or judged, but rather parents and youth should “be the first friend” to these women their community. Youth also noted that they were confident in seeking SRH services because it is a way to protect themselves from STIs. Despite these improvements, stigma persisted among some respondents, especially related to family planning use among young women.

Conclusion: This study demonstrates that a combined youth- and parent-focused SRH intervention can reduce stigma, improve contraceptive use, and support young people who are pregnant. However, more effort is needed to reduce stigma for young women.

Chronic disease

The role of ethnic enclaves and neighborhood ethnic resources in breast cancer mortality disparities by race, ethnicity, and nativity Brittany Morey* Brittany Morey, Stephen Uong, Salma Shariff-Marco, Scarlett Gomez, Jacqueline Torres, Stacey Alexeeff, Lawrence Kushi, Candyce Kroenke,

Background: Breast cancer (BC) mortality rates differ by race, ethnicity, and nativity in the United States (US). For Asian Americans, foreign-born women have higher risk of BC mortality compared to their US-born counterparts. Similarly, foreign-born Latinas have higher BC mortality rates compared to US-born Latinas. Prior studies find that living in ethnic enclaves and areas with higher neighborhood socioeconomic status (nSES) is associated with higher survival among minoritized groups. This study aims to further tease apart how living in ethnic enclaves, presence of neighborhood ethnic resources, and nSES might improve BC survival for immigrant populations.

Methods: Data are from the ENCLAVE Study—pooled data from 6,523 Asian, Latina, and non-Hispanic white women who were diagnosed with breast cancer in Northern California from 1996-2013. Survey data were combined with mortality data. The US Census and American Community Survey provided data on nSES and on Asian and Latinx/a/o ethnic enclaves. Asian- and Latinx-serving sociocultural institutions (SCIs) measure the ethnic businesses that serve social and cultural purposes, identified using business listing data. Cox proportional hazard models estimate the associations between race, ethnicity, nativity, and BC survival, adjusting for year of diagnosis, age, tumor stage, and marital status. Models examine whether ethnic enclaves, ethnic-serving SCIs, and nSES moderate these associations.

Results: In the sample, 71% of Asian, 42% of Latina, and 9% of white women were foreign-born. Asian and Latina women were more likely to live in ethnic enclaves. Overall, foreign-born were less likely than US-born women to die of BC (hazard ratio [HR]: 0.76 [95% CI: 0.58-1]), and this was especially true for foreign-born Asian women (HR: 0.42 [95% CI: 0.19-0.95]).

Discussion: The results of this study illuminate whether neighborhood ethnic and socioeconomic resources influence differences in BC survival by race and nativity.

Methodological approaches to studying public health

Trends in Dementia Risk Prevalence in South Korea by Sex: The Role of Socioeconomic Factors Cayley Ryan-Claytor* Cayley Ryan-Claytor, Liying Luo,

South Korea faces a rapidly aging population with almost one-fifth of the population aged 65 or older (OECD, 2023), largely due to increases in life expectancy and decreases in fertility. Age-related cognitive decline – namely, in the form of increased dementia risk – is increasingly a public health concern in this context. However, the newer cohorts entering old age differ significantly from their predecessors in their socioeconomic resources, which have a well-documented association with decreased dementia risk (e.g., Prince et al., 2012; Cadar et al., 2018). Using nationally representative survey data and the Kitagawa-Oaxaca-Blinder decomposition method, we evaluate, separately for men and women, how the changes in both population composition and the relationship between socioeconomic factors and dementia risk have contributed to the overall trends in dementia risk between 2006 and 2018. For both sexes, changes in educational and wealth compositions were substantially and statistically significant contributors to overall trends in high dementia risk, more so than changes in health conditions or health behaviors. The pronounced decline in dementia risk prevalence for older Korean women over the decade studied was largely driven by decreased proportions with no formal education and zero wealth and increased proportions of the population with at least secondary education (roughly equivalent to a high school degree in the U.S.) and some wealth. However, increased proportions of adults in the oldest age groups (80+) worked against potentially larger declines in dementia risk. Our results highlight the importance of considering population-level socioeconomic resource distribution as a determinant of trends in later-life health outcomes.

Socioeconomic status

Understanding Racial and Ethnic Differences in Intergenerational Money and Time Transfers in the United States Stephanie Hernandez* Stephanie Hernandez, Lucas Stewart, Kerith Conron, Carolyn Halpern,

Given persistent health disparities among racial and ethnic minorities, the strong association between socioeconomic status and health, and the protective effect of wealth accumulation on health, this study aims to document the pattern of intergenerational transfer of money and time among adults entering middle age (mean age = 41 years) in the United States and to assess whether transfers differed by race and ethnicity.

Data come from Sexual Orientation/Gender Identity, Socioeconomic Status, and Health across the Life Course Study, an Add Health ancillary study (2020-2021; n=2,614). The analytic sample was limited to non-Hispanic White, non-Hispanic Black, and Hispanic respondents with valid information on transfers.

Intergenerational transfers of money were operationalized using responses to questions about financial support received for education, home purchase, and major expenses such as car, wedding, starting a business, adoption/fertility costs, medical expenses, and living expenses. Respondents were also asked if they ever needed or wanted financial support for each of the major expense categories. Time transfers were assessed based on responses to questions about time and frequency parents spent helping respondents and time and frequency respondents spent helping their parents. An additional question was included about the number of parents that could easily visit the respondent.

Preliminary results suggest significant differences in intergenerational transfers by race and ethnicity. Compared to White respondents, Black and Hispanic respondents were likely to receive financial support for education, buying a home, and other major expenses including car, wedding, and medical expenses. Black and Hispanic respondents were also more likely to report providing financial support to their parents but were less likely to report that their parents spent time helping them.

Socioeconomic status

Educational Gradients in Health and Cognition: Does the Timing of Educational Attainment Matter?

Fabio Bolz* Fabio Bolz, Eric Grodsky, Chandra Muller,

Educational attainment is a strong predictor of later-life health and cognition. However, studies on the relationship between educational attainment and these outcomes usually do not consider the role of the timing of educational attainment. There is considerable heterogeneity in the timing of college degree attainment in the US and there are pronounced differences in timing by gender and race. Using nationally representative longitudinal data from High School and Beyond (HSB) we ask: (1) Does the impact of educational attainment on midlife health and cognition vary by age of degree attainment? (2) Does age at degree attainment moderate the effects of education differently across racial/ethnic and gender groups? We estimate OLS and logistic regression models for a variety of health and cognitive outcomes including: hypertension, diabetes, mental health conditions, general cognition, immediate recall, semantic fluency, phonemic fluency, delayed recall and working memory. We control for an extensive set of potentially confounding variables such as cognitive skills and non-cognitive traits in adolescence, academic performance in high school, and health in adolescence. Preliminary results suggest that bachelor’s degrees obtained later in life are associated with substantially lower levels of cognitive functioning at midlife than degrees obtained earlier in life; however, people who obtain college degrees after age 40 still display higher levels of cognitive functioning than individuals without a bachelor’s degree. Rates of hypertension and diabetes among those who obtained their college degree after age 30, in contrast, do not differ from rates for individuals without college degrees.

Socioeconomic status

Increasing Children’s Education Improves Parental Dementia Risk and Reduces Gradients in Risk: A Two-Generation Approach Rob Warren* Rob Warren, Liying Luo, Kenneth Langa, Jiahui Xu,

Recent research suggests that adult children’s education may influence their parents’ health at older ages. The empirical evidence about this upstream influence remains somewhat mixed, however. This is due in part to differing methodological approaches. To account for intergenerational selection and interdependent pathways, we use multilevel marginal structural models and well-defined casual estimands to analyze longitudinal data from the Health and Retirement study. We ask two important questions: (1) At the individual level, for whom does children’s education convey health benefits in older ages? (2) At the population level, what are the implications of increasing education levels among younger generations for (a) the health and well being of their parents’ generation and (b) educational disparities in health and well being? Our analyses suggests that at the individual level, increasing levels of children’s education decreases parents’ dementia risk. At the population level, educational disparities in dementia risk may be reduced as younger generations obtain more education.

Race/Ethnicity

Breastfeeding Initiation Trends by Supplemental Nutrition Program for Women, Infants, and Children Participation among NHOPI populations Jasmine Lusane* Jasmine Lusane, Marie Thoma, Leslie Hodges, Joanne Guthrie,

Introduction: Breastfeeding is cost-effective and provides overall health benefits to mother and baby. Breast milk is the best source of nutrition for most babies reducing the risk of some short- and long-term illnesses.1Literature reporting on Native Hawaiian and Other Pacific Islander groups are sometimes few and even more so when reporting on breastfeeding behaviors among subgroups. The purpose of this research is to describe pre- and post-COVID breastfeeding initiation trends by prenatal Special Supplemental Nutrition Program for Women, Infant, and Children (WIC) participation among Native Hawaiians Other Pacific Islander populations.

Methods: This was a cross-sectional study utilizing birth certificate data from 2016 to 2021 in all states that adopted the 2003 birth certificate revisions excluding California and Michigan. Trends were compared by WIC status across years and overall and within NHOPI groups. Linear and effect regression models were used to assess breastfeeding initiation prevalence. Models adjusted for maternal sociodemographic characteristics, which included maternal age, educational level, birth order, the timing of prenatal care initiation, pre-pregnancy BMI, hypertension, diabetes, NICU transfer, and smoking.

Results: Breastfeeding initiation increased overall for all NHOPI groups for both WIC participants and nonparticipants. Breastfeeding initiation was higher for all NHOPI groups who initiated prenatal care in the first trimester for both WIC participants and nonparticipants. Breastfeeding initiation was significantly higher for Guamanians for both WIC participants and nonparticipants than other NHOPI subgroups.

Conclusion/Significance: These findings can inform culturally appropriate maternal and child health policies and programs in their efforts to enhance breastfeeding promotion and education for NHOPI groups.

Key words: Breastfeeding, Native Hawaiian, Pacific Islander, WIC, Racial/Ethnic disparities

Race/Ethnicity

Efforts to Date Towards Addressing Anti-Asian Racism: What Comes Next? Stella Yi* Stella Yi, Sze Wan Celine Chan, Nelson Lin, Rachel Suss, Iyanrick John, Sugy Choi, Lan Doan, Simona Kwon,

Introduction

In response to the rise in anti-Asian discrimination in recent years, a plethora of new research, grassroots initiatives and policy efforts have emerged.

Approach

We undertook a narrative review of the published and grey literature published between 2020-2022 to describe existing efforts to address anti-Asian racism and identify opportunities for research. These efforts were mapped to the National Institute on Minority Health and Health Disparities Research Framework levels of influence – individual, interpersonal, community and society.

Results

Our review highlighted 40 examples of ongoing efforts across research, community, grassroots and government spaces. At the individual level, research focused on mental health and discrimination; community-based programs focused on bystander training/self-defense and culturally sensitive mental health/self-care. Interpersonal efforts involved research and non-profit initiatives promoting books that feature Asian American stories and education/community-building with other communities of color. Community-level interventions included public awareness campaigns, hate incident data tracking and neighborhood safety programs. At the societal level, legislative action has been taken to address anti-Asian attacks, improve data collection of disaggregated Asian race/ethnicity and mandate teaching Asian American history in K-12 education. Meaningful opportunities for future research include programs to strengthen ethnic identity, sense of belonging and facilitate cross-cultural learning, and evaluating the impacts of community- and societal-level actions and policy implementation.

Discussion

The current landscape of efforts to combat anti-Asian racism emphasize the need for preventative approaches – like fostering cross-racial learning to deter discriminatory acts and edifying Asian American resilience through programs that build ethnic identity, ethnic pride and sense of belonging.

Mortality

Mortality Patterns of Multiracial and Multiethnic Populations Arinala Randrianasolo* Arinala Randrianasolo, Alexander Chapman,

Mortality research that focuses on race and ethnicity often recodes people who identify as more than one race or drops them altogether and also neglects the race of people who identify as Hispanic. However, the United States has nearly 10 million people who identify as two or more races and some 60 million people who identify as Hispanic. These populations are projected to reach 25 million and 110 million by the year 2060. As the population in the United States continues to diversify, simplification of race and ethnicity omits more information about population health. We aim to address these weaknesses in population health research by assessing mortality patterns across single and multiracial populations in the United States.

We create a harmonized dataset from CDC WONDER and American Community Survey microdata from 2018-2022 to estimate mortality and life expectancy disparities across detailed races and ethnicities. We supplement our primary estimates with data from 1999-2017 that focus explicitly on differences across race by Hispanic ethnicity (e.g., non-Hispanic Back and Hispanic Black). We will also stratify results by gender, region, and age to further explain any disparities that may exist. Our study will be among the first to estimate these detailed patterns. Moreover, our results will have meaningful implications for population health and racial and ethnic health disparities.

Race/Ethnicity

Neighborhood Ethnic Concentration and Parental Cultural Socialization on Adolescent Ethnic Identity Development in Mexican Americans Cherita Clendinen* Cherita Clendinen, Shai Lin, Shanting Chen, Su Yeong Kim,

Ethnic-racial identity (ERI) is linked to adaptive psychological and physical health outcomes among Latinx youth. For Mexican American adolescents, ERI benefits from (a) higher neighborhood ethnic composition and (b) cultural socialization, which are integral to an individual’s microsystem in the immigrant-origin child and youth model. Indeed, youths’ ethnic socialization is shaped by both parents and neighborhood characteristics, impacting their understanding of ethnic identity. Therefore, it is crucial to examine the interaction of these two proximal contexts in influencing ERI development, which has yet to be established. This study aims to analyze the interactive effect of parental CS and neighborhood ethnic concentration on youth ERI.

We used a longitudinal dataset of 398 Mexican American youths (M = 13.3, SD = .94, 56.5% female), which measured adolescents’ reports of mother CS, father CS, and three dimensions of ERI (i.e., exploration, resolution, centrality). Family zip codes were geocoded and merged with measures of neighborhood ethnic/immigrant concentration, disadvantage, and affluence from the National Neighborhood Data Achieve (NaNDA). Covariates included the youth’s age, sex, nativity, and parent education.

Results showed that mother CS significantly moderated the link between neighborhood ethnic composition and ethnic. For youth with low mother CS, high Hispanic neighborhood concentration was linked with lower resolution (b = -.57, p = .01; Figure 1), reflecting a misfit of family-neighborhood dynamics. Youth who have not been culturally socialized by their mother may feel incompetent in navigating Hispanic contexts leading to ethnic identity uncertainty. However, such a link was insignificant for individuals with high mother CS. Overall, our study highlighted the importance of examining the interplay between neighborhood and family contexts in shaping adolescent identity development.

Structural factors

Reimagining Public Health Training for Epistemic and Health Justice: On Power, Pedagogy, & 'Radical Possibility' Ryan Petteway* Ryan Petteway,

Population health inequities are the product/(re)production of structural power dynamics – social, economic, & political. Public health scholars and practitioners have accordingly identified the need to engage power as a critical area of public health training, research, policy, & practice to advance health equity. Others have emphasized the necessity of deepening our field's commitments to antiracist & decolonial praxis, especially in regard to what is valued/counted as public health knowledge. Yet, there remains an absence of a unified set of related guidelines to inform curricular & accreditation requirements. For example, words like "power", "structural racism", "decolonizing", & "politics" are not mentioned in any of the 77 competencies for an accredited MPH. In short, there is a chasm between our empirical evidence related to health inequities & what we expect/require of those seeking public health training. The future of public health cannot afford another century of power-blind, apolitical, & epistemically violent courses, curricula, & competencies. Most fundamentally, this means we cannot proceed with the same curricular & credentialing guidelines and processes that, by design, produce complicity/complacency with the status quo. Health equity requires disruption of the status quo – a radical reimagination & reworking of what a degree in "public health" requires & represents. This talk proposes 6 interrelated areas for a power-informed, politically-aware, & epistemically just & inclusive public health training that better aligns with our extant empirical evidence & the socio-political realities of public health:

- Power relations & theories of power
- Epistemology & power/knowledge relations as germane to training, research, & practice
- Antiracist & decolonial theory and praxis
- Creative arts & inclusive pedagogies that honor multiple ways of knowing
- Media engagement (e.g. journalism), literacy, & communications theories (e.g. linguistics and power)
- Civic & political engagement, history of social movements, & advocacy

Structural factors

Power Resources and Population Health Megan Reynolds* Megan Reynolds,

Health scholars are increasingly focused on how the structural characteristics of states contribute to widely observed geographic variations in health and health inequalities. Despite this high-level perspective emphasizing structural contexts, surprisingly little attention has been paid to differences across states in the balance of power between working- and upper-class constituencies within major social institutions (i.e., Congress and the labor market.) Grounded in the theory of ‘health power resources’, this study investigates whether the density of labor unions and Democratic legislators, two groups historically aligned with the interests of the working class, are associated with population health among lower-income individuals. Linking state-level data to individuals in the Behavioral Risk Factor Surveillance System, we use state fixed effects regression models over a period of two decades to assess whether higher levels of working-class power resources are associated with lower rates of morbidity among individuals at/below the median income. The results of our study contribute to knowledge on population health by highlighting the potential pertinence of power resources as a structural determinant of health.

Structural factors

The population health effects of mass incarceration over the life course: a scoping review

Louisa Holaday* Louisa Holaday, Karenna Thomas, Jaelen King, Alyssa Grimshaw, Emily Wang, Jessica Simes,

Mass incarceration in the US has had population-level health effects.

We conducted a scoping review of 8 databases for primary articles published from 1990-2022 examining incarceration rate and health outcomes to synthesize what is known.

Of 53 articles, 26 use national data; 19 use a population level smaller than county; 38 define incarceration rate as current population per capita in prison, jail, or both. After controlling for potential confounders, most commonly poverty; racial demographics; and crime, 46/53 found significantly worse health outcomes as incarceration increased, 3 had mixed findings, and 4 found no independent association. 22/53 examined mortality; 4 found lower life expectancy at birth, including 2.5 years at the census tract level; 6 found higher infant mortality: at the state level, multiple studies found ~0.2 more infant deaths per 1,000 for each additional person incarcerated per 100,000; 2 using county data found a 2-7% increase in mortality as incarceration rates increased; 1 found lower mortality among Black men ages 20-44 at the state level. 5/53 examined birth outcomes, 4 across population levels found 3-13% higher rates of preterm birth. 5/53 examined chronic conditions. A 1 SD increase in neighborhood incarceration rate in childhood was associated with a 12% increased risk of adult hypertension; at the state level, male incarceration increases explained 18% of the increased rates of obesity in Black women in the ‘90s; living in a high incarceration ZIP code in Detroit was associated with 2.5-2.9x higher odds of anxiety or depression; in Atlanta, with 1.47x odds of hyperlipidemia and 1.67x odds of metabolic syndrome among Black adults; 2/53 found increased rates of overdose. 9/53 across population levels found increased rates of sexually transmitted infections. 3/53 found riskier sexual partnerships. 5/53 found increased rates of COVID.

Overall population health is worse as incarceration increases; further research is needed on mechanisms.

Structural factors

Does Stress from Incarceration of Family and Friends Contribute to Signs of Early Vascular Aging in African American Women? Nicole Fields* Nicole Fields, Zachary Martin, Lori Hoggard, Christy Erving, Shivika Udaipuria, Kennedy Blevins, Jordan Parker, Jaylah Goodson, Raphiel Murden, Reneé Moore, Rachel Parker, LaKeia Culler, Bianca Booker, Emma Barinas-Mitchell, Arshed Quyyumi, Viola Vaccarino, Tené Lewis,

Background: Arterial stiffening and early vascular aging (EVA) may contribute to elevated cardiovascular disease (CVD) risk among African American women. Incarceration, an event disproportionately impacting African Americans, may be a stressor contributing to EVA in African American women. Further, appraising incarceration as upsetting may fuel psychophysiological mechanisms contributing to poor health. We hypothesized that having family and/or friends incarcerated and appraising the incarceration as upsetting would be associated with markers of EVA.
Methods: African American women aged 30-46 (n=390) were asked whether a relative or friend was incarcerated within the past 5 years and to appraise how stressful the event was. Four indices of EVA were measured: pulse wave velocity, augmentation index, central systolic blood pressure (SBP), and pulse pressure amplification. Multivariable linear regression was used to examine associations of incarceration and its appraisal with EVA while adjusting for age, income, education, partner status, peripheral SBP, BMI, smoking, antihypertensive medication use, depression, and chronic stress burden.
Results: Forty-four percent of participants (n=172) reported family and/or friend incarcerated with fifty-eight percent (n=99) who reported the incarceration as upsetting. Women who reported incarceration as upsetting had a higher augmentation index (b = 3.87; 95% CI: 0.45, 7.29) and lower pulse pressure amplification (b = -0.04; 95% CI: -0.07, -0.01) but not pulse wave velocity nor central SBP compared to women who were not upset by the incarceration. Incarceration itself was not associated with measures of EVA.
Discussion: African American women who appraise family and/or friend incarceration as upsetting exhibit markers of EVA, independent of CVD risk factors and other psychosocial factors. Mass incarceration may affect the physical health of African American women which may contribute to disparities in CVD.

Health care/services

Who Uses Telehealth, Where, and When? Exploring Use of Psychiatric and Primary Care in Electronic Health Records of Patients with Depression Catherine Ettman* Catherine Ettman, Grace Ringlein, Jason Straub, Carly Lupton Brantner, Elizabeth Chin, Elena Badillo Goicoechea, Priya Dohlman, Fernando S. Goes, Elizabeth Stuart, Peter Zandi,

While telehealth has the possibility to improve access to healthcare for some, it may create disparities for others who may not have access to it. We sought to understand: 1) are there differences in who uses telehealth; 2) do telehealth usage patterns differ across primary versus psychiatric care? Using electronic health record data for two cohorts of patients with depression in a large U.S. academic medical system, we assessed telehealth use for primary care and psychiatric care from July 1, 2020, through December 31, 2023. Our sample includes patients ages >10 years in the Johns Hopkins Medicine System with a depression diagnosis with appointments in the Department of Psychiatry (n=15,218) or Johns Hopkins Community Physicians (n=44,243). We estimated the odds ratio of an appointment happening over telehealth versus in-person using multivariable logistic regression with random effects at the patient level (to account for repeated visits) for each patient characteristic: sex, age, race and ethnicity, employment, area deprivation index (ADI), insurance, and psychiatric co-morbidities (i.e., history of substance use disorder (SUD), anxiety disorder, and suicidal ideation or attempt). First, the following characteristics were associated with greater use of telehealth in both psychiatric and primary care from July 1, 2020, through October 21, 2023: female sex, White race, full-time employment, private health insurance, lower ADI, ages 18-64, and co-morbid anxiety. Second, we found that the following patient groups were more likely to use telehealth when controlling for all other patient characteristics and appointment characteristics (time of day, day of week, month, lead time) across both psychiatric and primary care: age (18-64 years), employment, lower ADI, and anxiety. In fully adjusted models, age, employment, and living in higher socio-economic areas were associated with lower odds of using telehealth, suggesting that access to resources may be a central driver of differences in telehealth use. Telehealth use may be concentrated among patients with higher socioeconomic status. Efforts to improve access to telehealth can help to reduce inequities in access to mental health treatment between patients with more and fewer economic resources.

Policy

Impact of anti-trans policy environment on trans people’s mental health Arjee Restar* Arjee Restar, Eric Layland, Landon Hughes, Emerson Dusic, Ruby Lucas, Audren Bambilla, Aleks Martin, Alic Shook, Baer Karrington, Deborah Schwarz, Genya Shimkin, Vanessa Grandberry, Xero Xanadu, Carl Streed Jr, Don Operario, Kristi Gamarel, Trace Kershaw,

This article examines the impact of anti-trans policies on trans people’s mental health. Using data (n=797) collected between March to April 2023 from the Priority Assessment in Trans Health (PATH) Project, a community-informed study in Washington state, we assessed via a series of multivariable regression modeling the relationship between awareness and concerns of the anti-trans policy environment (as main exposures), and their impact on depression and anxiety (as main mental health outcomes). Trans individuals who were concerned/worried about their rights being taken away (vs. not) had significantly higher odds of depression symptoms both during the first two years of COVID-19 (aOR=1.69, 95% CI=1.07-2.67) and currently (aOR=1.66, CI=1.08-2.54), as well as anxiety symptoms both during the first two years of COVID-19 (aOR=2.05, CI=1.20-3.49) and currently (aOR=2.67, CI=1.63-4.36). Those who knew (vs. did not know) about state-level protective legislation had significantly lower odds of depression symptoms both during the first two years of COVID-19 (aOR=0.34, CI=0.15-0.76) and currently (aOR=0.44, CI=0.28-0.67), as well as anxiety symptoms both during the first two years of COVID-19 (aOR=0.14, CI=0.05-0.35) and currently (aOR=0.11, CI=0.04-0.25). When examining interaction effects, trans individuals who correctly knew about the protective policies and were not worried about having their rights taken away reported the lowest odds of depression and anxiety. Our findings provide insights into informing policies and interventions that target trans populations’ worsened mental health outcomes as a result of anti-trans legislation.

Mental health/function

Obstructed Use as a Structural Driver of Adverse Mental Health Outcomes Kaleea Lewis* Kaleea Lewis,

The state of Missouri ranks 41st out of 50 in access to mental health care. Black emerging adults (18-25) consistently report higher rates of unmet mental health needs. Research has investigated Black emerging adults' unmet mental health needs; however, this research largely focuses on individual-level behaviors rather than structures that obstruct Black emerging adults' usage of these services. Obstructed use is a theoretical construct that illustrates how structural factors disrupt access to mental health care. Black emerging adults' obstructed use not only affects their quality of life but also increases the severity of race-based traumatic stress (RBTS). RBTS occurs when an individual perceives a racist or racially discriminatory encounter as a threat to their integrity or safety. To date, a small body of work has empirically studied the mental health impact of RBTS. This study will expand current knowledge by using qualitative methods to explore the relationship between obstructed use and RBTS.

In-depth interviews were conducted with 30 self-identified Black emerging adults in St. Louis County (and city), Missouri. Interviews explored participants' experiences with racism and racial discrimination, RBTS, and professional mental health services. Interview data were transcribed verbatim. Thematic analysis guided data analysis.

The participant's lived experiences illustrated the four core constructs of obstructed use: historical trauma, environmental toxicity, culturally bound economic insecurity, and cultural mistrust. Rich narratives discussing slavery, gentrification, stigma, and reparations spanned across the interviews. Participants' narratives reveal the underlying mechanisms that undergird RBTS and illustrate how obstructed use operates as a structural driver of adverse mental health outcomes. Study findings support the development of promotion and policy efforts that combat Black emerging adults' experiences of obstructed use and RBTS in Missouri.

Structural factors

Machine Learning Approach Investigating Heterogeneity of Social Determinants of Health and Suicides in the US Yunyu Xiao* Yunyu Xiao, Yuan Meng, Timothy Brown, Alexander Tsai, Lonnie Snowden, Julian Chow, Jyoti Pathak, J. John Mann,

Background: In the United States, disparities in suicide rates are significantly influenced by social determinants of health (SDOH), reflecting varied demographic and geographic profiles. Traditional studies have struggled to fully grasp the intricate, multi-layered aspects of SDOH.

Methods: This study employed a machine learning approach to categorize 3018 U.S. counties into distinct SDOH clusters based on 284 variables from six domains. These clusters were then analyzed in relation to county-level suicide rates from 2009, 2014, and 2019, utilizing data from the National Vital Statistics System. The analysis incorporated negative binomial and LASSO regression models to assess the relationships between SDOH clusters and suicide rates.

Findings: Three unique SDOH clusters were identified: “REMOTE” (characterized by rural settings, elderly populations, and marginalized communities), “COPE” (noted for complex family dynamics and high poverty levels), and “DIVERSE” (marked by urban areas with rich racial, ethnic, and economic diversity). The geographic distribution of these clusters shows notable patterns, with REMOTE prevalent in Northern and Central areas, COPE in Southern regions, and DIVERSE along the coasts. Significant associations were found between these clusters and county-level suicide rates, with variances across different demographic groups and over time. Notably, 70% of counties retained their cluster classification over the study period, indicating stable SDOH influences on suicide rates.

Implications: The findings underscore the importance of using machine learning to dissect the complex associations between SDOH and suicide rates. By identifying distinct SDOH clusters, the study highlights the necessity for region-specific and demographic-specific suicide prevention strategies. This approach can inform policymakers and health professionals in crafting targeted interventions to effectively reduce suicide rates across diverse community settings.

Migration

Impact of labor unions and employment stressors on parenting and mental health of native and foreign born parents in the United States Sima Bou Jawde* Sima Bou Jawde, Carmel Salhi,

Introduction: The importance of employment to parenting practices and childrens' mental health is well-established, but specific aspects of employment remain poorly understood. **Research gap:** Labor precarity and unionization are important aspects of immigrant parents' employment but remain virtually unexamined. **Methodology:** We use waves 1 and 9 in the Future of Families and Child Wellbeing study data, to examine nativity, parents' mental health (Composite International Diagnostic Interview scale; CIDI), labor union membership, and variables capturing how employment stress affects parenting. Variables about employment related stressors to parenting include, as an example, "shift at work schedule causes extra stress for [me and my] child." Analyses have 3 primary goals: 1) to examine bivariate correlations of nativity with union membership and employment variables; 2) to examine whether union membership has a protective effect on mental health and employment-related parenting stressors; 3) to examine the interaction of nativity and unionization on mental health and parenting. **Results**: Nativity status is significantly associated with having parents in union and employment related stressors ($p<0.01$). Though not significant, families with at least one parent in a union reported less depression (12.29% for father and 16.69% for mothers) than households without any parents in union (14.94% and 17.76%, respectively). Additionally, having at least one parent in a union was significantly associated with fewer employment-related parenting stressors, such as difficulty balancing child problems with work ($p<0.01$). Our logistic models reveal a protective effect of unionization on mental health among fathers of any nativity status, but not among mothers. **Conclusion**: While labor unions may be protective to parents' mental health and relationship with their children, unions' effects are informed by nativity and gender in ways that deserve further investigation.

Policy

Birth Outcomes and the Overall Generosity of Programs that Serve Low-Income Working Women Megan Reynolds* Megan Reynolds,

Variation in risk of adverse birth outcomes across US states is striking and cannot be fully explained by demographics. Research on “social policy as health policy” has examined the effects of individual safety net programs on infant health, but much less is known about how the overall generosity of these programs affects birth outcomes. Given that large numbers of the low-income working women draw simultaneously from these programs, and that their total value is influenced by complex cross-program interactions that vary across states, this constitutes a critical gap in knowledge. We address this gap in the literature by linking state-level data to the PSID for the years 1996-2018 and employing a novel counterfactual-based approach known as entropy balancing to estimate the independent and combined effects on low birthweight and preterm birth of three programs that serve low-income workers: the minimum wage, the Earned Income Tax Credit, and Supplemental Nutrition Assistance Program. By examining the combination of safety net programs to which working-poor mothers are likely to be exposed, we bring a novel approach that provides a more holistic account of how policy landscapes influence health early in the life-course.

Policy

Associations of Longitudinal Multi-Program Participation in US Safety Net Programs with Sociodemographic Characteristics and Health Marisa Tsai* Marisa Tsai, Rita Hamad, Lia Fernald, Wendi Gosliner,

Safety net programs provide critical aid to households with low income through an array of programs that have been individually associated with food security. However, research on concurrent take-up of multiple programs over time is limited. This study examines the association between federal safety net program participation over time and food insecurity (FI).

In two waves of data collection (2020-2021 and 2023), we collected tax returns and assessed demographics, FI, and safety net program participation from 497 California households. These included in-kind programs: Medicaid, Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and Pandemic-Electronic Benefit Transfer (P-EBT); and tax-based cash assistance programs: Earned Income Tax Credit (EITC), Child Tax Credit, and California’s supplemental CalEITC and Young Child Tax Credit. Latent transition analysis was used to characterize statuses by take-up patterns of safety net programs, and to explore the probabilities of transitioning between statuses. Multivariate logistic regressions estimated associations between food insecurity in 2023 and status transitions over time.

Two statuses were identified: “mostly in-kind” (high in-kind program take-up, and moderate take-up of cash programs) and “all” (high take-up of all programs). Approximately half of those initially classified as “mostly in-kind” transitioned to “all” in the second timepoint; most (72%) participants in the “all” remained in this status across time. Participants transitioning from “mostly in-kind” to “all” had increased odds of FI (OR=1.21), and those making the opposite transition had even higher odds of FI (OR=1.78) compared to those who were consistent in status membership. Although more participants increased their participation in programs by 2023, these findings suggest FI may both drive motivation to participate in programs, as well as stem from loss of program support.

Policy

Perinatal health effects of U.S. state paid family leave policies: A quasi-experimental analysis Whitney Wells* Whitney Wells, Justin White, Daniel Collins, Sepideh Modrek, Rita Hamad,

Background: The US is the only high-income country without a national paid family leave (PFL) policy for new parents. To fill this gap, several states have implemented policies. The health effects of state PFL policies have only been examined in early-adopting states. Early results suggest more socioeconomically advantaged parents may be better able to benefit from these policies. This study aimed to examine whether PFL policies in states with more recent policy adoption improved perinatal health, including among key subgroups.

Methods: We used quasi-experimental difference-in-differences (DID) analysis to examine the changes in outcomes pre- and post-policy implementation in PFL states compared to states that did not implement PFL policies during this period. Data were drawn from the 2004-2021 waves of the CDC’s Pregnancy Risk Assessment Monitoring System (PRAMS). Outcomes included breastfeeding, maternal postpartum depression, and attendance at a postpartum check-up. Multivariable regressions were adjusted for possible confounders and novel heterogeneity-robust DID models accounted for staggered implementation of policies across states. To investigate whether PFL policies had differential effects by parental socioeconomic position, we examined effects by subgroups including income, race/ethnicity, and marital status.

Results: PFL policies led to a 2.0 (95% CI: 0.5, 3.5) percentage point increase in ever breastfeeding and a 0.42 week (95% CI: 0.10, 0.74) increase in breastfeeding duration. Disparities were noted among key at-risk subgroups. Sensitivity analyses demonstrated robustness of results to alternative models.

Conclusions: This study adds important evidence on the health effects of state-level PFL policies. This evidence comes at a critical point where many states are in the process of enacting PFL policies, and during ongoing conversations about implementation of a national PFL policy.

Reproductive health

Pregnancy Identification and Radiology Scans in the Emergency Department: A Causal Analysis

Angela G. Campbell* Angela Campbell, Austin Knies, Sami Gharbi, Sarah Wiehe,

Background:

Racial disparities in maternal outcomes are an enduring issue in the United States, but little is known about the impact of emergency departments (ED) visits on maternal and fetal health. ED physicians frequently order radiology scans for diagnostics but generally avoid them when a patient is pregnant. This study examines racial disparities in pregnancy identification in the ED and the causal impact of pregnancy identification on radiology scans.

Methods:

We utilize a retrospective cohort of pregnant women who visited the ED within a large hospital system in an urban county in the Midwest from 2016 to 2023. Leveraging retrospective information on pregnancy status, we compare rates of radiology scans for pregnant ED patients by race/ethnicity. Using this information, we create an instrumental variable to isolate the causal effect of racial disparities in pregnancy identification on subsequent ED care.

Results:

Non-Hispanic Black women have 1.5 times [CI 95% (1.26, 1.76)] the odds of a missed pregnancy identification relative to Non-Hispanic White women. Then, utilizing an instrumental variable analysis, we show that mothers with a missed pregnancy on an ED encounter are significantly more likely to receive a radiology scan.

Conclusions:

This study finds evidence that Non-Hispanic Black women are less likely to be identified as pregnant in the ED and that this causally impacts their likelihood of receiving a radiology scan. These results demonstrate that racial disparities in healthcare provision contribute to differences in maternal outcomes and highlight the necessity of ensuring equitable care for all pregnant persons.

Infants/children/youth

The Intergenerational Transmission of Health: Does the Protective Perinatal Health Effect of the Civil Rights Movement Extend to the Next Generation? Allison Stolte* Allison Stolte,

In the United States, the 1950s and 60s were marked by the Civil Rights Movement and the enactment of federal policies aimed at abolishing discriminatory racial segregation and exclusion. Most notably, the 1964 Civil Rights Act (CRA) and the 1965 Voting Rights Act (VRA) expanded health care access and political representation for Black Americans. Prior research has linked the CRA and VRA to reduced racial-ethnic disparities, such that Black, but not White, Americans born in the late 1960s and 1970s had improved perinatal health compared to their counterparts born before 1965. Theories of life course health and the fetal origins of disease–which suggest that a mother's own perinatal health is linked to her later-life health and well-being, and thus also her offspring's in utero health–suggest that these race-specific positive outcomes may extend to the next generation through offspring's birth outcomes. In this paper, I examine the intergenerational consequences of the Civil Rights Movement by examining changing trends in rates of preterm birth (PTB; <37 weeks gestation) among births to mothers born before (1960-1965) and after (1966-1975) the CRA/VRA implementation. Using 1981-2010 US natality data and joinpoint regressions, I find that non-Hispanic (NH) Black PTB rates increased across maternal birth years for births to mothers in the pre-CRA/VRA cohort, but that PTB rates decreased across maternal birth years for births to mothers in the post-CRA/VRA cohort. These patterns are unique to NH Black births, such that NH White PTB rates increased steadily across maternal birth years for all cohorts. These results suggest intergenerational effects of the CRA and VRA and underscore the importance of considering maternal birth cohort effects when examining racial-ethnic disparities in perinatal health.

Socioeconomic status

Black/White disparities in intergenerational trajectories of maternal education and adverse birth outcomes in South Carolina Abigail Kappelman* Abigail L. Kappelman, Annie Ro, Nancy L. Fleischer,

Persistent racial disparities in low birth weight (LBW) and preterm birth (PTB) are a major health inequity, especially in the US South. Maternal educational attainment is a known social factor contributing to disparities, yet intergenerational measures of education are rarely examined.

Using the South Carolina Multigenerational Birth Dataset, we used maternally linked birth certificates from 1989-2020 to construct social mobility trajectories across generations based on grandmother’s and mother’s educational status (low = ≤high school; high = >high school): always low, upward, downward, always high. We compared the prevalence of educational trajectories by maternal Black and White race and examined the prevalence of LBW and PTB within maternal race across trajectories and within low grandmaternal education.

The always low trajectory was most common (44.8%), followed by upward (29.4%), always high (17.8%), and downward trajectories (8.0%). Low grandmaternal education was 8.2 percentage points more common for Black than White women ($p<0.001$). The prevalence of LBW and PTB were higher for Black than White women overall and within all trajectories (all $p<0.05$). Within low grandmaternal education, LBW was higher among Black and White women in the always low vs. the upward trajectory (both $p<0.005$). This difference was larger for White (-2.22; 95%CI -2.87, -1.58) than Black (-1.33; -2.23, -0.44) women, but the Black-White comparison of the differences was not statistically significant ($p=0.11$). PTB was higher for White women ($p=0.006$) in always low vs. upward trajectories, but there was no difference between the trajectories for Black women ($p=0.19$).

Results suggest that educational attainment across generations may have different impacts on risk of adverse birth outcomes for Black and White women. Any benefit of upward mobility on birth outcomes may be attenuated for Black women due to higher risk of adverse outcomes across both statuses of origin.

Reproductive health

Temporal Trends in Short Sleep Duration among Pregnant Persons in the US and Associations with Mortality Risk Symielle A. Gaston* Symielle A. Gaston, Samantha A. Molsberry, W. Braxton Jackson II, Judette M. Louis, Chandra L. Jackson,

Introduction: Maternal mortality has increased in recent years, with the highest rates observed among non-Hispanic (NH) Black pregnant persons. Short sleep, a modifiable risk factor for premature mortality, has also increased. Sufficient sleep during the critical period of pregnancy is essential for health; yet data on its trends among pregnant persons and on its relation to maternal mortality are sparse. **Methods:** In this ecological study, we used annual cross-sectional, nationally representative National Health Interview Survey (NHIS, 2011-2018 and 2020) data to estimate the annual prevalence of self-reported short sleep among pregnant persons. We assessed trends in short sleep duration with joinpoint regression and used repeated measures ANOVA to test for differences by race/ethnicity among Latine, NH Black, and NH White pregnant persons. Annual maternal mortality rates were obtained from the Division of Vital Statistics at the National Center for Health Statistics. Adjusted for age, race/ethnicity, and survey year, Poisson regression was used to estimate the maternal mortality incidence rate ratio (IRR) and 95% confidence interval (CI). **Results:** Among an estimated 19,284,118 US pregnant persons (mean age±SE=29±0.3 years), annual short sleep prevalence averaged 22% (range:0% [Asian in 2012] – 36% [NH Black in 2020]) and the mortality rate ranged from 17.4 (2018) to 23.8 (2020) deaths per 100,000 live births. Overall, sleep duration increased on average, although non-statistically significantly, by 6% [95% CI:-2.3,14.6] per year. Trends were comparable by race/ethnicity (pANOVA=0.15). A 1% increase in short sleep duration prevalence was non-statistically significantly associated with a 2% increase in the maternal mortality rate (IRR=1.02 [0.99-1.05]). **Conclusion:** Short sleep was prevalent (especially among Black pregnant persons), increased over time, and was marginally associated with increased risk of maternal mortality.

Health care/services

The impact of violence on healthcare for BSMM/TGP with recent CJI Matthew Feingold* Natalia Irvine, Natalia Irvine, Krina Shah, Sharon Parker,

Background. Black Sexual Minority Men (BSMM) and Transgender People (TGP) have increased experiences with violence before, during, and after incarceration. Prior research has suggested incarceration and related violence experiences negatively impact trust in the healthcare system and access to care. Understanding how to mitigate effects of violence on care is an important consideration for prevention and care efforts. The purpose of this study was to explore intersections of violence and access to care for BSMM/TGP with recent criminal justice system involvement (CJI).

Approach. The Criminal Justice Effects on Health Network (CJEHN) at New York University Grossman School of Medicine conducted semi-structured interviews with twenty providers or staff members of organizations that serve BSMM and TGP with CJI. Interviews explored how reported violence among patients was addressed and limitations that impact how providers' best address situations with violence.

Results. When asked about their institution's response to violence, most providers noted an institutional referral process which refers patients to external assistance such as a social worker. One provider noted a victim services program, a type of referral in which emergency room patients who report violence were offered outreach. The normalization of violence and reliance of victims on their offenders were mentioned as possible reasons for underreporting; a worrisome finding. Reporting violence was also noted as a risk for patients on parole, deterring one provider from further assisting. Oftentimes the last step taken was contacting the New York Police Department (NYPD), but the healthcare workers try to avoid from this alternative as it was noted to complicate situations in the past.

Conclusions. Reporting of violence from a patient with CJI is a very complex and difficult situation to address. A legislated protocol may improve outcomes and reduce stigma associated with violence.

LGBTQ+

Barriers and Facilitators to PrEP Access and Adherence in Young Men of Color: Multilevel Implications Allysha Maragh-Bass* Allysha C. Maragh-Bass, Amanda Souto, Eseohe Aikhuele, Elizabeth Tolley, Henna Budhwani, Lisa Hightow-Weidman,

Background: In the United States, the use of PrEP has led to a substantial decrease in HIV prevalence and incidence. However, some populations including young men who have sex with men (YMSM) of color continue to face limited life expectancy and less benefits from PrEP. These disparities highlight the need for tailored interventions and policies addressing multi-level barriers to adequate PrEP access. **Methods:** In collaboration with partner clinics, we recruited 19 PrEP clients and 16 PrEP providers (n=35) to participate in hour-long in-depth interviews. While client interviews explored personal experiences with stigma, barriers and motivators to PrEP, and information preferences, provider interviews explored providers' perceived stigma in their clinic, perceived barriers and motivators to meeting clients' PrEP needs, and rapport building with clients which need to be address via multi-level interventions. **Results:** Most participants were affiliated with one of the southern partner clinics. Clients and providers noted similar determinants to PrEP access, uptake, and adherence. Both recognized the impact of personal barriers such as routine adjustments and perception of need, as well as structural barriers such as transportation and financial difficulties. Clients emphasized the role of the client-provider relationship as part of contributing to willingness to disclose information such as HIV status and sexual practices. Providers noted the importance of sexual health and LGBTQ+ topics in their training and clinical protocols. **Conclusions:** PrEP clinics may benefit from hiring providers who share identities and experiences with YMSM clients of color and operating with a flexible schedule. Policies at clinics should require medical providers earn comprehensive sexual health and LGBTQ+ competencies to reduce bias in care. Multi-level interventions need to address these issues and social determinants experienced by this population outside of healthcare, such as societal stigmatization and housing instability.

Reproductive health

Household Division of Labor and Fertility Desires in the US: Do Gender and Sexual Orientation Matter? Michelle Eilers* Michelle Eilers, Claire Kamp Dush,

Families in the United States face increasing uncertainty since the COVID-19 pandemic that may have contributed to declining fertility desires and intentions. While extant research shows the positive role of relationship quality on fertility desires, less is known about how satisfaction with household division of labor and management could shape fertility desires and intentions, and whether this varies for same- and different-gender couples. In different-gender couples with women and men, women tend to manage and complete more household tasks than their partners, particularly once they become parents. This gap in household task division is less apparent in same-gender couples. Using novel, population-representative data of sexual minorities and heterosexual adults in the United States, this study assesses the role of satisfaction with division of household tasks and planning on fertility desires and short-term intentions, and whether these vary by sexual orientation and gender and among parents and non-parents. Initial results suggest that there is little effect of satisfaction on fertility desires among non-parents, but among parents, satisfaction with household tasks plays a significant role on fertility desires for men but not women. Future analyses will incorporate partner data on satisfaction as well as time-use data of time spent on household tasks and planning, in order to triangulate reports of household work and satisfaction with such tasks in a relationship dyad.

Place/Communities

Contextualizing the Systems of Hybrid Queer Landscapes: Activity Spaces, Social Networks, and Dating Apps of Gay, Bisexual, and Men Who Have Sex with Men in the Northeast and Southeast United States Bryce Takenaka* Bryce Takenaka, Sally Kirklewski, Erin Nicholson, Nathan Hansen, Trace Kershaw,

Background: Geosocial partner-seeking applications are deeply embedded in how young gay, bisexual, and men who have sex with men (GBMSM) navigate and negotiate spaces throughout the world that also shape their health. The purpose of this study is to contextualize the meaningful experiences of GBMSM at the nexus of social networks, activity spaces, and dating apps.

Methods: Semi-structured interviews were conducted between 2018 and 2021. We conducted iterative inductive and deductive coding and thematic analyses of 40 interviews (Northeast n=20 and Southeast n=20) with GBMSM.

Results: Four themes emerged: 1) place-based belonging, 2) place-based oppression, 3) hybridization of structural discrimination, and 4) hybrid spaces for connection. Participants discussed how GBMSM co-opt places (e.g., homes, clubs) to foster meaning and resistance against other isolating and stigmatizing spaces. GBMSM also experience anti-gay discrimination as well as financial deprivation in some of these places. Similarly, dating apps ground queerness and are used as a platform for community-building. Yet, GBMSM described the ways structural discrimination (e.g., homophobia, racism, fatphobia) and queer-specific marginalization were exercised through these virtual channels. Dating apps are technologies that bridge the physical landscapes and virtual spaces into unique hybrid terrains that transform places and social networks of GBMSM.

Conclusion: The exploration of GBMSM activity spaces, social networks, and dating app experiences provide a reconceptualization of queer spaces, communities, and technologies. By intimately understanding the ways location-specific technologies and places become embodied by GBMSM, we can further investigate the hybridization of sociostructural discrimination, co-opt of urban environments, and the embodied sexual behaviors and encounters of GBMSM. Thus, hybrid praxis may help inform needed locally tailored resources and interventions for queer communities to advance health equity.

Chronic disease

Sickle Cell Patient Education Materials Gemechu Geway* Gemechu Geway, Adam Salmi, Asmaa Ferdjallah,

Sickle cell disease (SCD) is a genetic disorder that affects the shape and function of red blood cells. People with SCD may experience a range of complications, including pain crises and stroke. These complications can have negative effects on physical, mental, and social well-being. Therefore, it is crucial that patients and families understand SCD and learn how to prevent and manage pain crises. This patient education resource aims to help patients and families learn about SCD in an easy-to-understand way, using visuals and analogies. The resource provides strategies and tools to enhance the quality of life for those with SCD. A three-dimensional (3D) model is a tangible and detailed representation of how SCD affects the blood vessels and red blood cells in various body parts. The model compares normal with sickled red blood cells and demonstrates how sickled cells can cause blockage, inflammation, and reduced oxygen and nutrient delivery. The model also demonstrates the role of hemoglobin and the genetic inheritance pattern of SCD. This can help patients and their families understand the disease process and the importance of following the treatment plan. Moreover, the model can be useful for SCD communities and healthcare providers in raising awareness and advocating for better education about the disease. By utilizing these resources, patients, families, healthcare providers, and the sickle cell community can better manage and advocate for the impact of SCD on patients' health and lives.

Chronic disease

Protocol for a Pragmatic Trial of Cannabidiol to Improve Chronic Pain Symptoms Among Veterans Mia Railing* Mia Railing, Rachel S. Bergmans, Riley Wegryn-Jones, Catherine Klida, Vivian Kurtz, Jennifer Eckersley, Amy Bohnert, Kevin Boehnke,

Background: Chronic pain affects over 100 million Americans, with a disproportionate number being Veterans. Chronic pain is often difficult to treat and responds variably to treatments resulting in low remission rates. Cannabidiol (CBD) has emerged as a potential treatment for chronic pain, yet research in this area remains limited, with few studies examining CBD’s analgesic potential among Veterans. Thus, we propose a clinical trial to investigate CBD’s effectiveness in managing chronic pain symptoms among Veterans in Michigan and other states with legal recreational use. Our primary objective is to examine whether CBD, compared to placebo control, is associated with greater improvement in the Patient Global Impression of Change (PGIC).

Methods: To examine whether CBD improves pain symptoms among Veterans with chronic pain, we have designed a randomized, double-blind, placebo-controlled, pragmatic clinical trial with 468 participants. Participants will be randomly assigned in a 1:1 ratio to receive either placebo or a CBD oral solution (i.e., Epidiolex) over a 4-week period. Participation in the trial is remote via a smartphone app. We will compare the difference in PGIC between the CBD and placebo group after 12 weeks and explore whether changes in pain severity, anxiety, and sleep quality influence PGIC treatment effects.

Discussion: Once complete, this trial will be among the largest to date concerning the efficacy of CBD for chronic pain. Findings gained from this clinical trial will contribute to a greater knowledge of CBD’s analgesic potential and guide further research. Given the relative affordability of CBD and availability of Epidiolex, our findings may underscore the potential of an accessible, low-cost option for addressing chronic pain among Veterans.

Chronic disease

A Scoping Literature Review of Financial Insecurity and Pain Deena Aboul-Hassan* Deena Aboul-Hassan, Maedeh Veyseh, Amarah Dawkins, Nupur Shah, Mira Fayad, Gyan Farrell Caluag, Scotland Williams, Rachel Bergmans,

Introduction: Chronic pain conditions and pain interference are more common among those with lower socioeconomic status. The mechanisms that explain these health inequities remain largely unknown but structural socioeconomic disadvantages likely play a role. Financial insecurity, such as food insecurity, is a unique social risk factor that can affect health above and beyond other social determinants of health like education and income. However, the impact of financial insecurity on pain is not well established. Given the paucity of research about financial insecurity and pain, the aim of this study is to systematically assess the size and scope of the available evidence concerning the association of financial insecurity with pain, including chronic pain, pain interference, and pain intensity.

Methods: We developed a search strategy for PubMed that included keywords for financial insecurity and pain. Authors independently applied the inclusion and exclusion criteria first to the titles and abstracts and then to the full manuscript text of each remaining article.

Results: Findings from this scoping literature review will provide a framework for studying social determinants of pain, highlight approaches for assessing financial insecurity status, and give insights into potential underlying mechanisms that contribute to the greater burden of chronic pain conditions and pain among those with lower socioeconomic status. The results of this scoping literature review will be an important reference for guiding future research that seeks to investigate the contribution of social risk factors to inequities in chronic pain conditions and pain interference.

Conclusions: This scoping literature review will set a foundation for further research on social determinants of pain and provide additional insight into the underlying mechanisms that give rise to the prevalence of chronic pain conditions and outcomes in communities of lower socioeconomic status.

Health behaviors

Impact of Urban Sprawl on Health Behaviors among BIPOC Adults: A Multi-Level Analysis

Yi Wang* Yi Wang,

This study investigates the association between urban sprawl and health behaviors among BIPOC adults using data from the Behavioral Risk Factor Surveillance System (BRFSS) and the American Community Survey (ACS) for metropolitan and micropolitan statistical areas (MMSAs) between 2007 and 2021. Multi-level modeling shows that, after controlling for individual-level characteristics and other confounding factors, the lack of development density and less land use mix are negatively associated with daily fruit and vegetable consumption, monthly exercise, yearly checkup and flu shot. Further research is needed to explore the causal mechanisms underlying these associations and to identify features of compact development that are most beneficial for promoting healthy lifestyles in BIPOC communities.

Health care/services

Androgen Deprivation Therapy and the Risk of Rheumatic Autoimmune Diseases in Men with Prostate Cancer

Mohanad Albayyaa* Mohanad Albayyaa,

Background

Prostate cancer is the second most common cause of cancer death among men.1,2**Androgen Deprivation Therapy (ADT)** is one of the mainstay treatments for prostate cancer patients, but it carries a range of possible adverse effects, including rheumatic autoimmune diseases (RAD).3 **Rheumatic autoimmune diseases** include rheumatoid arthritis, systemic lupus erythematosus, ankylosing spondylitis, and Sjogren’s syndrome.

Methods

Patients aged 66 years or older diagnosed with prostate cancer between 2010-2019 were identified using TCR-Medicare data. ADT exposure, defined as the first dose of a GnRH agonist/antagonist or orchiectomy, was assessed. Patients were followed until RAD diagnosis or censored by study end, death, or loss of coverage. Non-ADT-exposed patients were 1:1 matched to ADT-exposed based on age, stage, race-ethnicity, and diagnosis year. Cox proportional analyses, adjusted for confounders like education, poverty, rural/urban status, marital status, grade, concomitant medications, and antiandrogens, estimated HRs (95%CI) for RAD associated with ADT vs. non-ADT use.

Results

A total of 10,100 matched patients were included in the analysis. The failure rates of RAD over time calculated using the Kaplan-Meier curves showed that patients receiving ADT had higher rates of RAD of 11% (95% CI:0.10-0.12), while men who received non-ADT had lower rates of RAD of 9% (95% CI:0.08 – 0.10). In the Cox proportional model, ADT use was significantly associated with an increased risk of RAD, **HR=1.29**(95%CI:1.17-1.56), p<0.001, after adjusting for age, race, stage, and Elixhauser comorbidity.

Discussion

Our analyses showed that patients who received ADT had a 29% increased risk of being diagnosed with rheumatic autoimmune diseases, after adjusting for sociodemographic and clinical factors. Linking ADT to an increased risk of RAD adds to the broad list of known adverse effects, which have a significant clinical and public health impact.4-6 Therefore, clinicians should carefully consider the patterns of care and discuss the possible adverse effects before initiating the ADT.

Health care/services

Use of Traditional Eye Treatments (TET): An experience from Liberia, West Africa Fatima Rizvi* Fatima Rizvi, Anza Rizvi, Niranjan Pehere,

Purpose: To assess the patterns, demographic and clinical characteristics, and outcomes associated with the use of TET among patients presenting to a primary eye clinic in Liberia.

Methods: This was a retrospective study involving all newly presenting ophthalmic patients to the center who had taken some form of TET from January 2018 to December 2020. Utilizing an EMR database, patients were identified through keywords and relevant demographic and clinical information was extracted.

Results: Total 42 patients were included in the study (male 24, females 18). The mean age was 47.16 years (range 18-79 years). Thirty-two patients (76.19%) lived in counties which had no available eye care facilities and 10 (23.8%) patients lived in counties where an ophthalmologist was available. Mechanical injury (20, 47.62%), corneal ulcers (12, 28.57%), chemical injury (2, 4.76%), pterygium (2, 4.76%), retinitis pigmentosa (2, 4.76%), allergic conjunctivitis (2, 4.76%), cataract (1, 2.38%) and refractive error (1, 2.38%) were the most common causes for seeking TET. On average, it took 8.6 years for patients to seek treatment at the clinic after first experiencing eye issues. Treatment information was documented for four patients, predominantly involving the application of a tree leaf extract. Thirty patients (71.43%) were blind in the affected eye, 5 (11.9%) patients had best corrected visual acuity (BCVA) ranging between 20/40-20/200 and 7 (16.66%) patients had BCVA of 20/20. The cause of visual morbidity in most patients was corneal scar (30, 85.71%), cataract (3, 8.57%) and decompensated cornea (2, 5.71%). Two patients benefited from refractive correction and one patient underwent cataract surgery. Medical treatment was given for patients with active corneal ulcers (2) and allergic conjunctivitis (2).

Conclusion: A crucial need for improved eye care accessibility, public education, and awareness in areas lacking services is needed to mitigate the detrimental effects of TET.

Health equity

Prostitution, social and healthcare services Laura Porto-Roquett* Laura Porto-Roquett,

People involved in prostitution are engaged in a complex web of social environments which makes them an important population to reach in regard to health and social services. In the US, 70,000 to 80,000 people are arrested for prostitution annually, this number includes prostitutes, madams/pimps, and clients. Approximately 90% of those arrested are prostitutes and madams/pimps, and around 70% are female.

People in this community are a diverse group that solicits and serves clients in a variety of settings, including brothels, entertainment venues, public and private spaces, and online. The epidemiological context as well as social and structural factors and power differentials further inequalities among people involved in prostitution. For example, street-based female prostitutes have a high risk of violence, HIV, and sexually transmitted infections when compared to those involved in off-street settings. Due to the nature of the activity, prostitution is highly stigmatized and often criminalized, increasing their vulnerability to all those outcomes. Additionally, sexual and reproductive health needs and gaps in appropriate primary and mental healthcare are common among this population.

People involved with prostitution, and often its counterpart sex trafficking, are primarily from marginalized racial and ethnic groups such as African Americans, Native Americans, Hispanics/Latinos, and primarily females. While African American females comprise 6% of the US population, they can represent over 50% of the prostituted population4. Similarly, Native women comprise around 2% of the US population, and they account for 70% of the prostituted population in some localities. Furthermore, in 2021, 24% of the likely victims of sex trafficking were Latino.

The objective of this study is to examine the myriad of factors that influence the social services and healthcare options people involved in prostitution will access. A systematic review of the literature identifying barriers to accessing services and strategies in response to perceived challenges will also be addressed.

Health equity

HBCU Attendance and Later-Life Physical Health, Mental Health, and Cognitive Outcomes

Rafael Arias-Achio* Rafael Arias-Achio, John Robert Warren, Eric Grodsky, Chandra Muller,

This study examines the association between attending a Historically Black College or University (HBCU) and later life physical health, mental health, and cognitive outcomes at age ~60 among men and women racialized as Black who attended college in the 1980s. Do Black students who attend HBCUs enjoy better outcomes than otherwise similar peers who attend predominantly White institutions (PWIs)? While higher educational attainment is associated with better later-life health and cognitive outcomes, research has found that health returns to education in the United States are lower for racial/ethnic minorities. This is to be expected if we account for the history of structural and institutional racism in U.S. education, which has historically favored white students. Do Black students fare better in environments designed to better serve their needs? We use data from the High School and Beyond Study ‒ a large, diverse, nationally representative sample of Americans followed from high school in 1980 through mid-life in 2021-22. To examine the relationship between HBCU attendance and later-life health and cognitive outcomes among Black college-students, we use multivariate probability and linear regression models and a variety of midlife (age ~60) outcomes: obesity, hypertension, diabetes, cardiovascular disease, psychological distress, and cognitive functioning. We find no evidence that Black college students who attend HBCUs enjoy more favorable midlife health or cognitive outcomes.

Acknowledgments:
The 2021 follow-up of the High School and Beyond (HSB) cohort was supported by (1) the National Institute on Aging of the National Institutes of Health under award number R01AG058719 and (2) the Alzheimer’s Association under award number SG-20717567.

Health equity

Impact of Patient-Provider Racial Concordance on Vaccination Rates Among Medicaid-Insured Children Nicole Hair* Nicole Hair,

High average pediatric vaccination rates in the United States mask substantial racial/ethnic and socioeconomic disparities. Black, low-income, and Medicaid-enrolled children are least likely to be up to date on recommended vaccinations. Missed routine vaccinations pose a serious public health threat as undervaccinated communities face increased risk for outbreaks of vaccine-preventable diseases.

There is increasing evidence that patient-provider concordance improves clinical care and health outcomes for minoritized groups. Racially concordant care has been associated with significant improvements in mortality for Black infants and causally linked to increased take-up of preventive health services and reduced inpatient mortality among Black adults. Trust plays a critical role in parental decision-making on childhood vaccinations. Yet, to our knowledge, there has been no rigorously designed study to evaluate the effect of patient-provider concordance on pediatric vaccination rates.

We leverage ten years of linked administrative data (2012-2022; incl. vital records, Medicaid claims, immunization registry, and professional licensure data) from South Carolina and an instrumental variable strategy to estimate the effect of racially concordant care on vaccination rates among Medicaid-insured children and evaluate to what extent patient-provider concordance may mitigate longstanding disparities in pediatric vaccination rates. We further explore how these associations evolved over the course of the COVID-19 pandemic, a period when many children fell behind on routine vaccinations while mistrust and misinformation regarding vaccines increased.

Study findings are expected to inform efforts to effectively address inequities in pediatric vaccination, including efforts to diversify the physician workforce, to increase the presence of minority providers who are a part of a team-based model of care, and to incorporate cultural competency into graduate and continuing medical education.

Health equity

Investigating Segregated Education & Trajectories of Muscle Strength among Black Middle and Older Adults by Gender

Dominique Sylvers* Dominique Sylvers,

Background: Educational inequities have been linked to racial health inequities in older adults. Yet, few studies examine the lifecourse implications of educational segregation on health and aging (Hahn, 2022; Walsemann et al., 2022; Zajacova & Lawrence, 2018). We examine the relationship between educational segregation and handgrip strength (HGS), a preclinical indicator of physical health and aging (Bohannon, 2019; Ferraro et al., 2017).

Methods: We use retrospective data from the Health and Retirement Study (HRS) Life History Mail Survey (LHMS), along with HRS physical health data, collected between 2006 and 2016. We examine trajectories of HGS among the sample of non-Hispanic Black HRS LHMS respondents (N=1,489), using gender stratified linear mixed models.

Results: Preliminary results found declines in HGS over time ($p<0.001$), with steeper declines for men. Declines in HGS were also associated with: 1) only attending majority Black schools during primary and secondary schooling for both genders ($p<0.001$), but men experienced more than double the decline compared to women ($p<0.001$). Additionally, starting school prior to the Brown v. Board Supreme Court ruling of 1954 was associated with steeper declines in HGS, compared to those who started school after Brown ($p<0.001$).

Conclusion: Findings suggest that educational segregation may be an important structural predictor of declining health over the Black adult life course. There are serious implications for both handgrip strength and educational segregation. Studies not only show handgrip strength to be a predictor of mortality (Duchowny, 2019; Laukkanen et al, 2020; Lopez-Bueno, 2022), but show an association between educational segregation and reduced life expectancy among the Black population within the U.S. (Hahn, 2022).

Health equity

Disparities in Life Expectancy by Educational Attainment in US counties, 2000–2019 Laura Dwyer-Lindgren* Laura Dwyer-Lindgren, Dillon O Sylte, Mathew M Baumann, Yekaterina O Kelly, Paula D Strassle, George A Mensah, Eliseo J Pérez-Stable, Christopher JL Murray, Ali H Mokdad,

Educational disparities in life expectancy are well known nationally but have not been comprehensively examined at a local level. We estimated life expectancy for US counties by educational attainment (less than high school [HS], HS graduate, some college, and college graduate) from 2000 to 2019.

We used validated small area estimation models to estimate age-specific mortality by educational attainment, county, sex, age, and year using National Vital Statistics System death records and population estimates from the 2000 decennial Census, the American Community Survey, and the National Center for Health Statistics. Age-specific mortality rates were adjusted for misclassification and for format changes to the education item on death certificates. We applied standard life table methods to estimate life expectancy at age 25 + 25 (the average age at death for someone who survives to 25).

Between 2000 and 2019, life expectancy increased by 2.5 years for the college graduate population, but by only 0.7 years for the some college population, and 0.4 years for HS graduates, and was unchanged for the less than HS population. Nationally, and in most counties, there was a clear educational gradient in life expectancy. County-level life expectancy varied substantially; the IQR for the less than HS population was 67.4–72.1 years and for the college graduate population was 82.3–84.6 years in 2019. Life expectancy declined in the less than HS and HS graduate populations in most counties (81% and 74%, respectively) but increased in most counties in the some college and college graduate populations (62% and 87%). From 2000 to 2019, the life expectancy gap between the college graduate and less than HS populations grew in 91%, decreased in 9%, and reversed in <1% of counties.

County-level estimates reveal widespread disparities in life expectancy. Improvements over time were concentrated in higher education populations, leading to increasing disparities nationally and in most counties.

Health systems

Patient Satisfaction is No Longer Relevant to the Delivery of Healthcare Ernest Rovella*
Ernest Rovella,

Research Objective: There is an assumption of correlation between patient satisfaction and hospital financial success. A hospital could be performing well financially due to effectively delivering the care that patients appreciate. The reverse could be possible in that hospitals that perform well financially have the resources to invest in care delivery that patients acknowledge with their satisfaction. The objective of the research is to analyze the correlation between hospital financial margin each year with the patient response results of Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys.
Study Design: Regression analysis was performed to identify correlation, direction, and statistical significance between reported patient experience and hospital financial outcome for the years of 2015 through 2021. The dependent variable was hospital financial margin as calculated from the Centers for Medicare and Medicaid Services (CMS) Hospital Provider Cost Report. Control variables were largely retrieved from the Hospital Provider Cost Report but also included hospital teaching status retrieved from CMS's Open Payments Data on Research Payments. Independent variables were individual HCAHPS question response results retrieved from CMS's Hospital archived data snapshots. Individual questions were limited to those that were consistent across the entire study period. Scoring of each question was based on the percentage of patients that reported the highest possible response.
Population Studied: United States hospitals that participate in the HCAHPS program were studied and participation was limited each year to those who received sufficient responses to have complete reporting. Between years 2015 and 2021, the largest number of hospitals included was in 2015 with 3391 hospitals. Data reported in 2020 was limited to responses received July through December and the number of hospitals dropped to a low of 2645.
Principal Findings: There are distinct patterns and trends in data results that vary over the study time period. In 2015, there are 3 of 9 questions that positively correlate with hospital margin and hold statistical significance. In 2016, 5 of the 9 questions are positively correlated. The positive relationship between HCAHPS responses and financial margin reaches a peak in 2017 with 7 out of 9 questions achieving statistical significance. The trend inverts in 2018 with 8 out of 9 questions becoming negatively associated with hospital margin. No questions are significant in 2019. All 9 questions are negatively related to margin in 2020. No significance is identified in 2021.
Conclusions: Early in the study, hospitals that performed well with patient experience were associated with better financial performance. Then better patient experience flipped to become connected with worse financial performance. At the end there is no longer a connection between the two. There are many other factors related to the financial success of a hospital with many ongoing changes.
Implications: Despite CMS changes to increase the weight of patient experience when calculating value-based payments / penalties, there is no longer a positive relationship with overall hospital margin. Government payments for patient experience will not have an impact without policy change as other industry factors have greater impact. If patient feedback is no longer connected to financial success, then hospitals have less incentive to align the delivery of healthcare with patient needs.

Infants/children/youth

Assessing the Relationship Between Adverse Childhood Experiences and Academic Performance Among United States Students: A Systematic Review and Meta-Analysis Rachel Tyrone* Rachel Tyrone, Lauren Fletcher, Courtney Walker, Caroline Compretta, Jennifer Reneker,

Adverse Childhood Experiences (ACEs) are associated with disparate health and educational outcomes. The objective of this systematic review and meta-analysis is to determine the relationship between ACEs and academic performance among United States children and adolescents. A total of 20 articles were included for a descriptive synthesis and 11 articles were included in the quantitative synthesis. Among the 11 studies, we found a weak, negative correlation between ACEs and academic performance. Further research is needed to explore all the potential adverse exposures that could impact academic outcomes and factors that might mediate the effects of ACEs on academic performance.

Life-course/developmental

Beyond adversity: Investigating the role of positive and adverse childhood experiences on adult health outcomes Darryllyn Do* Katherine Saxton, John Redinbo, Cassie Blake,

Background Early life stress and trauma (ACEs) can lead to a variety of overlapping, detrimental physical and mental health outcomes. Far less is known about the impact of positive childhood experiences (PCEs) on health. Our study examines the combined effects of ACEs and PCEs on adult health outcomes.

Methods Using data from the 2021 California Health Interview Survey (CHIS, n=24,453), we explore the relationship between childhood experiences (ACEs and PCEs) and adult health outcomes including self-reported health, psychological distress, and drug use. We use logistic regression to examine effects of childhood experiences on adult health, adjusting for sociodemographic covariates, with high PCEs/low ACEs as the reference group.

Results Adverse childhood experiences (ACEs) were associated with increased risk of negative health outcomes in adulthood, and positive childhood experiences (PCEs) were associated with improved health. People who reported low PCEs and high ACEs were over four times more likely to experience fair/poor physical health than those with high PCEs and low ACEs (OR=4.06, 95% CI: 3.35, 4.92). People with low PCEs and high ACEs had 10.75 times higher odds of psychological distress than the lowest risk group (OR=10.75, 95% CI: 8.87, 13.03). ACEs were positively associated with drug use, but the relationship between PCEs and substance use was less clear. Individuals with low PCEs and high ACES had increased odds of substance use as compared to the lowest risk group (OR=2.57, 95% CI: 1.90, 3.46), similar to people with high PCEs and high ACEs.

Discussion PCEs buffered participants from the negative health effects of ACEs, such that the effect of increasing ACEs was reduced among those who reported more positive childhood environments. Future studies should examine which categories of PCEs are most effective at protecting children’s health, even in the midst of challenging environments.

Mental health/function

“People think they’re takin’ Xanax, but there’s fentanyl in it”: Understanding the risks of street benzodiazepine use in the fentanyl era Patricia Timmons* Patricia Timmons, Madeline Hooten, Kaylin Sweeney, Elisabeth Williams, Haley Coles, Raminta Daniulaityte,

Rising U.S. overdose rates are fueled by fentanyl contamination of street drugs including benzodiazepines. In 2021, 70% of benzodiazepines-related deaths involved fentanyl, a steep increase from 20% in 2015. Current research on street benzodiazepine use is limited to case reports and toxicology data. Little is known about lay motivations, practices, and perceived risks of using non-prescribed (genuine) vs. counterfeit benzodiazepines in the fentanyl-saturated drug market.

Through in-depth interviews the present study aims to characterize knowledge, attitudes, and experiences with non-prescribed and counterfeit benzodiazepine use and availability in Phoenix, AZ, an area of increasing drug market contamination with fentanyl.

Semi-structured interviews (n=64) were conducted from November 2022 to December 2023. Participants were recruited through Craigslist ads, a harm reduction organization, and participant referrals. Eligibility included: age 18 years and older, lives in the Phoenix area, and past 30-day use of non-prescribed and/or counterfeit opioids or benzodiazepines. Interviews were transcribed and thematic analysis occurred using NVivo 14.

18 participants endorsed past 30-day use of non-prescribed and/or counterfeit benzodiazepines, 33 reported lifetime use, and 10 reported ever receiving a prescription for benzodiazepines. Difficulty accessing treatment led to non-prescribed benzodiazepines use to self-treat anxiety, insomnia, and alcohol misuse. As non-prescribed benzodiazepine availability decreased, many were forced to use counterfeit benzodiazepines suspected to contain fentanyl. The need to “feel normal” and reduce withdrawal symptoms drove ongoing use and quashed perceived risks associated with counterfeit benzodiazepines.

These findings highlight the need for more research on street benzodiazepine use as emergence of counterfeit benzodiazepines increases overdose risk and harms due to fentanyl contamination in the current drug market.

Mental health/function

A Survivor-Centered Definition of Suicidality

Katie Billings* Katie Billings,

Researchers often fail to define suicidality—suicidal ideation, attempts, and deaths—or they define it inconsistently. Failure to precisely define suicidality not only prevents comparison across research and suicide rates, but also impedes a rigorous theoretical definition of suicidality as a sociological phenomenon. In response to top-down nomenclatures used to define suicidality, I propose a novel, bottom-up taxonomy that draws on the experiences of first-hand suicide survivors (henceforth “suicide survivors”)—those who have considered or attempted suicide—to define suicidality and the elements within it. Using 102 semi-structured interviews, I analyze suicide survivors’ descriptions of their suicide experiences and the definitional elements they use to differentiate them. Based on these descriptions, I argue that suicidality should be understood through two dimensions: subjectivity and action. Suicide survivors describe subjectivity on a spectrum ranging from an explicit intention to die to indifference about life. Subjectivity is then coupled with either an action or inaction toward death. I propose a typology to define the boundaries of suicidality, which broadens former definitions by including those who experience indifference about life and ambiguous intentions.

Mental health/function

“I don’t know how you can overdose smoking them:” Exploring overdose-related risks and experiences among person who use illicitly manufactured fentanyl-based counterfeit pills

Raminta Daniulaityte* Raminta Daniulaityte, Kaylin Sweeney, Madeline Hooten, Patty Timmons, Elisabeth Williams, Haley Coles,

Illicitly manufactured fentanyl (IMF) remains the primary driver of overdose (OD) mortality in the US. There are notable regional differences in IMF availability trends across the country. Most prior studies on lay perceptions of OD-related risks in the era of IMF spread were conducted in the regions where IMF is primarily available in powder form as a contaminant or replacement of heroin. This qualitative study, conducted in Phoenix, Arizona, aims to provide an in-depth understanding of how OD risks are viewed and experienced by people who use IMF in a counterfeit pill form (“blues”). Between November 2022 and December 2023, the study recruited 60 individuals with past 30-day use of “blues” for qualitative interviews. The study was approved by ASU IRB. Qualitative interviews were recorded, transcribed, and analyzed using NVivo. The sample was 42% female, 58% non-Hispanic white, and 44% reported lifetime experiences of unintentional OD. Most participants used “blues” daily, typically smoking 20 or more pills per day, but over 60% viewed their OD-related risks as none/low. Majority were convinced that smoking route of administration was an important protective factor against OD. Discussions surrounding tolerance and dosing practices to reduce OD risks were embedded in conventional values of self-control and personal responsibility. Many also attributed reduced OD risks to changing IMF markets, as they believed that over time “blues” became more consistent in their quality and potency, and thus, less risky. However, some expressed fears about the emerging local availability of IMF in powder form, which was viewed as more potent and dangerous in terms of OD risks. Participants also engaged in several other protective behaviors, including buying “blues” from a trusted source, keeping naloxone kits on hand, using with trusted companions, and managing polydrug use. The study findings have important implications for design and delivery of harm reduction services.

Methodological approaches to studying public health

Time-Traveling Maps: Georeferencing 1940 Census Data for Contemporary Alzheimer’s Disease Analysis Elizabeth Blake* Elizabeth Blake, Josie Holland, Maria Navarro, Taylor Mobley, Elizabeth Rose Mayeda, Joan Casey,

Incidence of Alzheimer’s disease and related dementias (ADRD) is 40-100% higher among Black compared to white Americans. Residential environmental exposures in early life, including air pollution, poverty, and systemic racism, may partially explain these disparities. Evaluating these relationships requires accurate linkage of early-life exposures in cohorts with measures of late-life cognitive health. Researchers have matched the now publicly available 1940 census records to Health and Retirement Study (HRS) participants, providing the participants’ 1940 residential enumeration district code. Unfortunately, this code does not provide the spatial locations of HRS participants since, to our knowledge, there are no comprehensive digitized 1940 enumeration district maps. In ongoing work, we identify the spatial location of HRS participant enumeration districts by scanning original 1940 enumeration district maps held at the National Archives and Records Administration and later using ArcGIS Pro to georeference and digitize all enumeration districts. The final output will consist of a spatial data frame containing enumeration district identifiers, enumeration district centroid latitude and longitude, and the enumeration district polygon. Ultimately, this will allow us to investigate the relationship between early-life spatially-resolved exposures, such as historical redlining and ambient air pollution, and late-life brain health and whether differences in early-life exposure contribute to racial disparities in ADRD. Our research highlights the importance of cataloging and digitizing historical physical data to support health research spanning the life course.

Methodological approaches to studying public health

Historical and Political Analysis of Migrant Worker Health in Maryland Elise Ferrer* Elise Ferrer, Thurka Sangaramoorthy,

COVID-19 underscored the fundamentally hazardous nature of meat and poultry work. In early 2020, processing plants closed or reduced production due to the virus’s spread and to workers’ refusal to labor under extreme precarity. On April 28, 2020, then President Trump issued Executive Order 13917, classifying meat and poultry industries as critical infrastructure and allowing plants to reopen. In response, worker advocates expressed grave concerns that federal, occupational health regulators did not effectively address COVID-19 risks affecting meat and poultry workers, whose cramped environments substantially increased their COVID-19 exposure.

In this paper, we argue for the importance of incorporating historical and political analysis within population health research. Using archival and ethnographic research findings from an interdisciplinary project investigating the impact of public health policy on disparate health outcomes for migrant farmworkers in Maryland, we posit that heightened risk among migrant workers during the COVID-19 epidemic and beyond is both routine and predictable, and must be considered alongside longstanding and existing processes of racial capitalism, settler colonialism, white supremacy, and populist ideologies. Historical and political analysis evidences past policies, actions, and events not merely as static objects whose aftershocks ripple into the present, but as examples of tactics and patterns of dispossession, extraction, and disregard which are continually deployed in the present. Rather than framing that history repeats, we emphasize history as continuation. We demonstrate that power, wealth, and authority aren’t ordained by past structures but must be continually reinscribed and maintained. Expanding the scope of population health research to include historical and ethno-archival methods, public health practitioners can better articulate the realities of contemporary health disparities and develop more grounded solutions.

Migration

The Role of Social Capital in Immigrant Mental Health and Assimilation: A Study of Central American Migrants in the United States. Indiana Garcia Torres* Indiana Garcia Torres,

Migration is a multifaceted process shaped by various economic, demographic, and sociological factors, influencing individuals' decisions to emigrate. This complex journey often presents migrants with numerous mental health challenges, exacerbated by the geographical distances traveled and underlying motives for migration. Amidst this landscape, social capital emerges as a critical determinant of successful assimilation upon migrants' arrival in a new environment. However, the role of social capital prior to migration remains poorly understood. This study seeks to bridge this gap by investigating how social capital influences migrants' psychological mechanisms and prepares them for the migration journey. This research posits that social capital plays a significant role in the pre-migration stage by providing migrants with essential tools, skills, and perceptions necessary for assimilating into American culture. This preparation phase not only mitigates distress but also enhances the overall assimilation experience, thereby reducing migrants' mental stress levels. To achieve these objectives, the author employs inductive research and a mixed-method approach. Through in-depth interviews and observations with 30 immigrants from Central America. This study aims to highlight the dual role of social capital as both a pre-assimilation process that mitigates distress and an essential component that enhances the overall assimilation experience, contributing to a reduction in migrants' mental stress levels during pre and post-migration phases.

Migration

Examining structural supports offered to resettled refugees in 10 host countries – a scoping review acknowledging health in all policies Jessica Farangaiz Saifee* Susitha Wanigaratne, Andrea Macikunas, Lea Wenger, Janavi Shetty, Jessie Cunningham, Eline Skirnisdottir Vik, Eric Russell, Karla Fredricks, Astrid Guttmann, Julia Brandenberger,

Background: The United Nations High Commissioner for Refugees mandates countries participating in its resettlement program to have policies directing the provision of essential supports and services during resettlement. Our research aimed to 1) summarize and compare the resettlement supports offered across countries, 2) examine refugee experiences with these supports.

Methods: The 10 countries resettling the largest number of refugees in 2021 (United States [US], Canada, and 8 European nations) were included. We summarized and compared the structural supports described in official documentation across these nations. To capture the experiences of refugees and service providers regarding met and unmet needs in the first year of resettlement, we conducted a scoping review of literature from 1995 to 2022, sourced from four bibliographic databases. Two reviewers screened titles, abstracts, and full-texts for inclusion. One author extracted relevant data from all studies and a second author from a 30% sample. We enumerated study characteristics and descriptively summarized unmet and met needs.

Results: For aim 1, the US and Canada provide comparable financial aid, albeit with regional variation. Both countries offer publicly funded healthcare, though time-restricted in the US. In our scoping review (aim 2), 61 studies qualified (US=35, Canada=25, UK=1). Among Canadian studies, only two included children and seven focused on Syrian refugees. Documentation of unmet healthcare needs was common (n=20), including language barriers and a lack of culturally appropriate care. Unmet financial needs were also common (n=13) including inadequate amounts and length of support and lacking access to suitable jobs. Met healthcare needs were also common (n=12).

Conclusion: Despite high levels of resettlement, only one European study was eligible for the review. Refugees in Canada described numerous unmet resettlement needs. We will complete our review, adding US studies, in the months ahead.

Mortality

Social Determinants of Mortality: A Nativity-Based Analysis among Millennials and Generation X Radhika Prasad* Radhika Prasad, Muntasir Masum,

Introduction: Prior studies show Millennials have worse health outcomes such as diabetes, obesity, and self-rated health than Generation X (Martinson et al 2022; DePew & Gonzales 2019). While research highlights generational health differences, it often overlooks variation within each cohort. Individuals in the same generational cohort may have very different lived experiences based on their social background, which could affect their life chances (Cohen, 2021). In this study, we investigate how nativity shapes mortality risks for Millennials and Generation X cohorts.

Methods: Data for the analyses came from the 1997-2016 pooled waves of the National Health Interview Survey. We used Cox regression models to examine factors associated with mortality risk among Generation X (born 1965-1979) and Millennials (born 1980-1994). We compared stratified models among US-born vs foreign-born.

Results: In US-born millennials, obesity increased mortality risk by 33% ($p<0.032$) compared to those who are not obese, while a college degree reduced it by 46% compared to those with less education ($p<0.012$). These factors did not significantly affect foreign-born millennials. Both US-born (aHR 0.47) and foreign-born Generation X (aHR 0.53) with a college degree had significantly lower mortality risk than those with less than a high school education ($p<0.001$). US-born (aHR 1.64) and foreign-born Generation X (aHR 1.08) who were obese had significantly higher mortality risk than non-obese ($p<0.001$)**.**

Conclusion: Foreign born Generation X have lower mortality risk than US-born Generation X. Our findings indicate that more education is associated with lower mortality risk for both US-born and foreign-born members of Generation X, while obesity increases mortality risk for these groups. US-born Millennials face more mortality risk factors compared to their foreign-born counterparts, yet nativity does not significantly contribute to mortality risk among Millennials.

Non-health institutions (business, political, education systems)

Economic Context, Schooling Modality, and Mental Health in U.S. Adults Living with Children During the COVID-19 Pandemic Catherine Ettman* Catherine Ettman, Elena Badillo Goicoechea, Elizabeth Stuart,

The COVID-19 pandemic upended contexts for families; relatively little work has studied the influence of pandemic-era context on the mental health of adults living with children. We aimed to assess the relation between economic context and schooling modality with the mental health of adults living with school-age children during the pandemic. Using a large, national sample from the COVID-19 Trends and Impact Surveys collected in partnership with Meta (CTIS; N=1,485,072 responses from November 2020 through June 2022), the sample included over one million responses from adults living with children under the age of 18 years old during the COVID-19 pandemic who were active Facebook users. We used weighted multiple logistic regression to estimate the association of frequent feelings of depression and anxiety, respectively, with economic context and schooling modality, controlling for demographics, state, and COVID-protective behaviors (e.g., mask wearing). We found that financial worry was most strongly associated with reporting frequent feelings of depression and anxiety across all time periods, and the association significantly increased over time ($p<0.001$) from aOR 2.25 (95%CI 2.19, 2.32)/aOR 2.63 (95%CI 2.54, 2.73) in Fall 2020 to aOR 3.11 (95%CI 3.01, 3.22)/aOR 3.79 (95%CI 3.64, 3.95) in Spring 2022 for anxiety and depression symptoms, respectively. Living with children in fully online schooling (vs. fully in-person schooling) was associated with worse mental health in all study periods, increasing from aOR 1.08 (1.05, 1.11)/aOR 1.06 (1.02, 1.10) in Fall 2020 to aOR 1.20 (1.10, 1.32)/aOR 1.28 (1.16, 1.42) in Spring 2022 for anxiety and depression symptoms, respectively. Financial worry and schooling modality were associated with mental health of adults living with children in the household during the COVID-19 pandemic and the strength of the association grew over time. These findings suggest a need to focus on economic context of families during largescale events. Future policy decisions around schooling modality–or of how to support families and communities during periods of school closure–may consider parental mental health an additional factor worth weighing.

Policy

Examining State Punitive and Reporting Policy Impact on Neonatal Abstinence Syndrome and Maternal Substance Use During Pregnancy between 2008-2019 Nalani Thomas* Nalani Thomas,

Introduction

The prevalence of substance use disorder during pregnancy (SUDP) and infants diagnosed with neonatal abstinence syndrome (NAS) has significantly increased over time. Punitive policies rooted in child welfare laws have been employed to address SUDP. Kant's Categorical Imperative (KCI) offers an ethical framework emphasizing universal duty-challenging behaviors driven by personal desires. This study analyzes the correlation between state-punitive and reporting policies related to NAS hospitalization rates from 2008 to 2019 and discusses the ethical implications of policy approaches.

Data/Methods

Secondary data from the Healthcare Cost and Utilization Project's State Inpatient Database merged with punitive and reporting policies from the Guttmacher Institute. Multi-level modeling assessed the associations between policy and hospitalization rates over time.

Preliminary Results

Model 1 shows a unit increase in NAS Hospitalizations with time (ß=0.55, SE=0.78). Model 2, with punitive policies, also sees this increase (ß=0.55, Year = 0.55, SE=0.79). Model 3, includes punitive and reporting policies, and improves fit statistics. On average, states with reporting policies show higher NAS hospitalization rates. Model 4 highlights the lessened effects of reporting policies as a fixed factor. Reporting policies as fixed and random factors, each policy presence sees a 3.70 unit increase in NAS hospitalization. Reporting policy as a random factor indicates greater within-cluster differences.

Discussion

KCI may demonstrate how reporting policies may be associated with greater hospitalization rates and may imply greater access and continuity of care. Limitations include dichotomized policy categorization and a lack of demographic data. Future research should consider longitudinal studies incorporating historical and political analyses, as well as legal epidemiology studies, to comprehensively evaluate the impact of punitive policies on NAS hospitalization rates.

Mental health, assets, and use of new technologies among U.S. adults Catherine Ettman* Catherine Ettman, Alice Y. Fan, C. Ross Hatton, Haiyang Yang, Salma M. Abdalla, Sandro Galea,

Advances in digital technologies such as generative artificial intelligence (AI), the metaverse, and social media are transforming society. There is growing concern about the link between digital technologies, equity, and mental health, but few studies have explored whether mental health is associated with use of newer digital technologies, such as ChatGPT and the metaverse, among the general adult population. Using data from the COVID-19 and Life Stressors Impact on Mental Health and Well-Being (CLIMB) study, a nationally representative, probability-based sample of U.S. adults collected in March-April 2023 (N=2,479), we explored the relation between positive screen for generalized anxiety disorder (GAD-7 $\geq$ 10) or depression (PHQ-9 $\geq$ 10), and financial assets with the use of generative artificial intelligence (AI), metaverse, and social media. We used multivariable logistic regressions to estimate the odds of having ever used generative-AI such as ChatGPT, having ever used the metaverse, and using social media for more than 3 hours per day (which was the median number of daily use among responders), adjusting for mental health and demographic characteristics. Survey weights aligned the sample with the U.S. adult population according to the Current Population Survey. Persons who screened positive for anxiety or depression were more likely to report having ever used the metaverse and using social media for 3 or more hours a day but were not more likely to report having ever used generative-AI. Persons with positive screen for depression or anxiety are more likely to use the metaverse and use social media for more than 3 hours per day, suggesting that these platforms may each be used to engage persons with poor mental health. These findings highlight different associations between mental health and digital technology use, potentially paving the way for targeted mental health guardrails to ensure that potential adverse impacts of digital technologies are mitigated.

Race/Ethnicity

Neighborhood Ethnic Concentration and Parental Cultural Socialization on Adolescent Ethnic Identity Development in Mexican Americans Cherita Clendinen* Cherita Clendinen, Shai Lin, Shanting Chen, Su Yeong Kim,

Ethnic-racial identity (ERI) is linked to adaptive psychological and physical health outcomes among Latinx youth. For Mexican American adolescents, ERI benefits from (a) higher neighborhood ethnic composition and (b) cultural socialization, which are integral to an individual’s microsystem in the immigrant-origin child and youth model. Indeed, youths’ ethnic socialization is shaped by both parents and neighborhood characteristics, impacting their understanding of ethnic identity. Therefore, it is crucial to examine the interaction of these two proximal contexts in influencing ERI development, which has yet to be established. This study aims to analyze the interactive effect of parental CS and neighborhood ethnic concentration on youth ERI.

We used a longitudinal dataset of 398 Mexican American youths (M = 13.3, SD = .94, 56.5% female), which measured adolescents’ reports of mother CS, father CS, and three dimensions of ERI (i.e., exploration, resolution, centrality). Family zip codes were geocoded and merged with measures of neighborhood ethnic/immigrant concentration, disadvantage, and affluence from the National Neighborhood Data Achieve (NaNDA). Covariates included the youth’s age, sex, nativity, and parent education.

Results showed that mother CS significantly moderated the link between neighborhood ethnic composition and ethnic. For youth with low mother CS, high Hispanic neighborhood concentration was linked with lower resolution (b = -.57, p = .01; Figure 1), reflecting a misfit of family-neighborhood dynamics. Youth who have not been culturally socialized by their mother may feel incompetent in navigating Hispanic contexts leading to ethnic identity uncertainty. However, such a link was insignificant for individuals with high mother CS. Overall, our study highlighted the importance of examining the interplay between neighborhood and family contexts in shaping adolescent identity development.

Race/Ethnicity

Impact of police killing of George Floyd on emergency department visits diagnosed as schizophrenia spectrum disorders among Black youth in Ohio- A time-series analysis

Parvati Singh* Parvati Singh,

Disparities in schizophrenia diagnoses between Black and White individuals in the United States are well documented. Racial bias in psychiatric practice and diagnostic criteria may underlie these disparities. The diagnostic imbalance may arise from unjust pathologization of specific attributes in Black individuals. Under the guise of “Protest Psychosis,” the historical patterns of over- and misdiagnosis of schizophrenia among Black activists during the Civil Rights movement may continue to persist in contemporary diagnostic trends.

We examined whether the police killing of George Floyd in May 2020 preceded an increase in Emergency Department (ED) visits among Black and White youth (aged 5-24 years) in the state of Ohio, US. We used monthly data from the Ohio Medicaid claims database (January 2016-December 2020) and investigated changes in ED visits among Black youth with and without a prior schizophrenia spectrum disorder diagnosis (SSD) (outcomes), within 0-2 months of the murder of George Floyd (exposure, binary indicator for June 2020). We utilized time-series analyses that controlled for autocorrelation, monthly ED visits for all other psychiatric conditions among Black youth and contemporaneous ED visits diagnosed as SSD among White youth. We also controlled for the initial phase of the COVID-19 pandemic (March-May 2020). Results from time-series analyses indicate a 40% increase in ED visits diagnosed as SSDs among Black youth without a prior diagnosis, two months following the murder of George Floyd ($p<0.001$). Sensitivity tests support our main inference. Our study underscores the enduring impact of “Protest Psychosis” on racial disparities on psychiatric outcomes.

Social/relational factors

Spirituality and Cardiovascular Health: Within-Race Differences in the HANDLS Study

Jason Ashe* Jason Ashe, Shari Waldstein, Rupsha Singh, Christian Maino Vieytes, May Baydoun, Michele Evans, Alan Zonderman,

Spiritual transcendence (ST) spans experiences and beliefs comprising purpose in life, sense of meaning, and connection to humanity. Although studies have shown favorable associations between religious participation and cardiovascular health (CVH), less is known about spirituality. Also, because longstanding disparities remain, there is a need to understand how these relations vary across and within racial groups.

Our cross-sectional study used participant data from the Healthy Aging in Neighborhoods of Diversity across the Life Span study in Baltimore, Maryland initiated in 2004. The American Heart Association's Life's Simple 7 (LS7) is a CVH assessment composite score comprising modifiable behaviors and biometric measures (physical activity, smoking, diet, body mass index, cholesterol, glucose, and blood pressure). Higher scores reflect better CVH. ST comprised nine items assessing prayer and meditation fulfillment, connectedness, and universality. LS7 and ST were measured and calculated at follow-up visits (2013-2017) for 1,110 African American (AA) and White participants, aged 36-76 years old. Multivariable regression models examined up to 3-way interactions of linear and quadratic ST, race, and either sex, age, poverty status, or education when not treated as adjustment variables. Sensitivity analyses adjusted for substance use, depression, relationship status, social support, health insurance, and medical history.

Two key themes emerged (p's < .05). ST was positively related to LS7 among Whites above the federal poverty line. For AAs, a U-shaped relation appeared: both lower and higher ST were related to higher LS7 as age increased. Sensitivity analyses did not alter results; and no other interactions were found. Findings suggest that ST uniquely contributes to overall CVH but varies for Whites above poverty and older AAs. Future work should seek to replicate these results. Promoting spirituality in community settings may help to improve CVH.

Social/relational factors

Whose assets? The relation between individual and household level income and savings with mental health Catherine Ettman* Catherine Ettman, Emma Dewhurst, Ben Thornburg, Brian Castrucci, Sandro Galea,

While there is a growing understanding of the link between financial assets and mental health, the literature is lacking on two dimensions. First, although wealth (including savings) may better inform ability to cope with life's stressors than income alone, it is substantially understudied relative to income. Second, most studies measure income at the household level instead of the individual level. Using four waves of the nationally representative COVID-19 and Life Stressors Impact on Mental Health and Well-being (CLIMB) survey collected in Spring 2020, 2021, 2022, and 2023, we estimated the odds of elevated symptoms of depression (PHQ-9) and anxiety (GAD-7) across individual and household level income and savings in separate and pooled models with time fixed effects, clustering standard errors at the individual level. Our sample included participants who completed ≥ two waves of the CLIMB survey (n=5,084 responses across n=1,271 participants). In separate bivariable models, below median household and personal income and savings were each associated with poor mental health (PHQ-9: OR 2.37, 2.45, 2.02, 2.17; GAD-7 OR: 2.09, 1.91, 1.51, 1.66; $p < 0.001$). However, in fully adjusted models household level financial assets were no longer associated with poor mental health. Having personal savings below the median ($10,000) was associated with 1.76 times the odds of depression (95% CI: 1.19, 2.59), and 1.53 times the odds of anxiety (95% CI: 1.01, 2.32). Having personal annual income below the sample median ($35,000) was associated with 1.67 times the odds of depression (95% CI: 1.23, 2.28), and 1.75 times the odds of anxiety (95% CI: 1.24, 2.47). Whether financial resources are owned by an individual or shared with a household may inform the associations between income and savings with mental health.

Socioeconomic status

Non-Profit Hospital Growth and the Abandonment of Those Without Financial Resources

Ernest Rovella* Ernest Rovella,

Research Objective: The objective was to study how growth in non-profit hospital care has occurred relative to the median income of the patient’s zip code.
Study Design: Data from the US Census and the Centers for Medicare and Medicaid Services was combined to identify non-profit hospitals, zip codes served by those hospitals, and the median income of those zip codes. 2015 was used as the base year with the most current data of 2022 used for comparison. Total Charges was used to determine the percentage of overall volume attributed to each zip code. Since charges are unique to each hospital and can vary over time, the percentages were calculated as isolated by hospital and year. Zip codes contributing to less than 1% of the hospital’s Total Charges were removed from analysis.
Population Studied: US non-profit hospitals and the patients that received services.
Principal Findings: Preliminary sample data shows that non-profit hospitals have increased in size but utilization has declined for zip codes with relatively lower median incomes. Zip codes that increased as a percentage of total revenue had median household incomes of $3572 higher than zip codes that decreased as a percentage of total revenue. Over the 7-year period, the number of zip codes contributing to more than 1% of the total revenue increased by 20%. Zip codes included from the beginning of the period remained constant with their relative revenue contribution when the median income was above average. Zip codes with below market average median incomes saw a decrease.
Conclusions: Non-profit hospitals have increased in patient charges over the study period. New zip codes were added to the service areas and included areas with below market average median income. However, the majority of growth in the original service areas was limited to zip codes with above average median income despite growth in the population of zip codes with below market average median incomes.
Implications: Non-profit hospitals are targeting growth in areas with greater median income at the expense of areas with lower income. Proportionally less care is provided to those who have fewer financial resources suggesting there may be a link between income and access to care.

Structural factors

How Do Counties’ Industry Structures Shape Cardiovascular Disease Mortality? Yue Sun*
Yue Sun,

Industry structures refer to the employment opportunities provided by different industries. Different industries are associated with various environmental and socioeconomic consequences. However, less is known about whether and how industry structures influence population health. In this study, I examine the associations between counties’ industry structures and cardiovascular disease (CVD) mortality in the United States for 2016-2018, and explore the environmental, economic, and health care mechanisms that may explain these associations. Using Ordinary Least Squares regressions and Karlson-Holm-Breen mediation analysis, I find that counties with larger shares of employment in farming, mining, and manufacturing have higher CVD mortality rates. The relationships between certain industry employment shares and CVD mortality rates can be partially explained by higher concentration of air pollutants, worse economic wellbeing, and fewer health care resources in counties with larger shares of employment in these industries. However, the importance of these mechanisms varies by industry. In manufacturing-dominant counties, air pollution, median household income, and physician rate help explain higher CVD mortality rates. In farming counties, median household income and physician rate are crucial. In mining counties, the physician rate is important. These findings reveal how local industry structures function as institutions that produce and exacerbate multiple place-level disadvantages and how these disadvantages contribute to CVD mortality.

Substance use

“I don’t want drugs. I want pain relief”: Exploring the intersection between chronic pain and illicitly manufactured fentanyl use Kaylin Sweeney* Kaylin Sweeney, Elisabeth Williams, Madeline Hooten, Patricia Timmons, Haley Coles, Raminta Daniulaityte,

The opioid overdose crisis in the United States, driven by illicitly manufactured fentanyl (IMF), is linked to overprescription of pharmaceutical opioids beginning in the 1990s. Pathways between prescription opioid use, misuse, and initiation of heroin and/or illicit pharmaceutical opioid use in persons experiencing chronic pain are well documented, however, few studies have explored connections between motivations and patterns of IMF use, particularly in counterfeit pill form, and chronic pain. Thus, there is a need to understand the experiences of persons with chronic pain who use IMF.

Sixty individuals were recruited in Phoenix, AZ who self-reported past-30-day use of IMF in counterfeit pill form (blues). Semi-structured interviews were conducted following informed consent between 11/2022 and 12/2023. All interviews were recorded, transcribed, and qualitatively coded with NVivo.The study was approved by ASU IRB.

Twenty participants explicitly linked their use of IMF to management of their chronic pain. A majority of these attributed IMF use to limited pain management options. Reported reasons inadequate pain management included active illicit substance use and fear of stigma in healthcare settings. Some participants also reported termination of a prescribed opioid without a taper, which in some cases led to avoidance of the medical system and initiation of illicit substance use. Nearly all participants with chronic pain expressed daily function improvement as a result of using IMF to manage their chronic pain. A few participants described negative aspects of using IMF to manage chronic pain, including poorer pain control compared with other opioids and worsening physical health.

These results indicate the need for improved access to pain management options among people who use illicit opioids and the development of interventions aimed at reducing stigma in healthcare settings. Further research should focus on the relationship between chronic pain and IMF use.

Biomarkers or biological pathways

Revisiting the Weathering Hypothesis: Asian-white Disparities in Physiological Functioning in the United States Man Zhang* Man Zhang, Alexandra Ro, Yang Claire Yang,

Background: Research has documented that Black and Hispanic populations experience accelerated aging compared to whites, a process termed “weathering,” due to cumulative exposure to socioeconomic adversity and political marginalization in a race-conscious society. However, little is known regarding the presence or extent of the weathering process in other minority ethnoracial groups, as do the demographic and socioeconomic correlates of differential biological aging and physiological functioning.

Methods: Using nationally representative samples of non-Hispanic Asians and whites aged 20+ from the National Health and Nutrition Examination Survey (2011-2018), we estimated survey-weighted OLS regressions to assess racial disparities in the age trajectories of metabolic dysfunction, a composite measure of high-risk glycated hemoglobin, systolic and diastolic blood pressure, HDL cholesterol, waist circumference, and body mass index, and inflammation measured by C-Reactive Protein (log-transformed).

Results: We found significant linear and quadratic age effects for metabolic and inflammation risks, suggesting increases in physiological dysregulation with age that decelerate at older ages. Asians had lower metabolic and inflammation risks on average [β(SE)=-0.40(0.04), $p<0.001$ and β(SE)=-0.49(0.04), $p<0.001$, respectively]. The Asian-white gap in inflammation risk did not vary with age, but the gap in metabolic dysfunction increased from early- to mid-adulthood and then decreased in late life. Adjusting for gender, educational attainment, and family income eliminated the Asian-white gap in both metabolic and inflammatory risks.

Conclusion: Our findings provide new evidence of age-related biological risks among Asian populations. The convergence of the Asian-white gap in metabolic function during late life is attributed to accelerated aging among Asians, which may be driven by the racialized patterning of stress exposure due to acculturation and discrimination in the U.S.

Chronic disease

Sickle cell disease severity and outcomes in Anuak patients: A scoping review Gemechu Geway* Gemechu Geway, Prokop Larry, Asmaa Ferdjallah,

Southeast Minnesota is home to a significant population of Anuak individuals who seek care within the Mayo Clinic Health Systems. The city of Austin, MN, is home to a population numbering around 450 Anuak individuals who are seen at the Mayo Clinic Austin location as well as the Rochester main campus of Mayo Clinic. In total, more than 3000 Anuak individuals live in Minnesota, which is considered the largest Anuak population outside of East Africa.2,7,8,10,11 For pediatric patients with Sickle Cell disease (SCD), 75% are Anuak. The majority of these patients have severe sickle cell disease with chronic anemia, frequent pain crises, cardiac ventricular enlargement, acute chest pain, and multiple hospital admissions. A scoping review utilizing the following databases was conducted: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, and Daily, Ovid EMBASE, Ovid Cochrane Central Register of Controlled Trials, Ovid Cochrane Database of Systematic Reviews, and Scopus. Only two studies met established criteria. Unfortunately, both sources of literature were dated and not consistent with current trends. Despite communicating with colleagues in Ethiopia, there is no accurate or robust data about the incidence or prevalence of SCD among the Anuak people. The local Anuak diaspora in Southeast Minnesota likely represents the best current data on this patient population. There is a need for further research and data on SCD outcomes in this special population.

Chronic disease

Family Out-of-Pocket Healthcare Expenditure Burden and its Association with Family-Level Diagnoses of Depression, Anxiety, and Diabetes Sharon Larson* Stephanie Kjelstrom, Richard Hass,

Financial strain is a social driver of health that causes stress on individuals and families. National healthcare expenditures for people with depression, anxiety, or diabetes are substantial. Managing these conditions is complex and can require high out-of-pocket expenditures (OPE). The financial burden of families with these conditions has been understudied. We examined the OPE burden for families who have anyone diagnosed with depression, anxiety, or diabetes compared to families with none of those diagnoses.

Using the 2020 MEPS, we categorized depression/anxiety (DA) and diabetes (DM) at the family level (FL): no DA/DM, DA only, DM only, and DA+DM. Family burden, calculated as a percentage of family income [(family OPE / family income)*100], was compared across FL DA/DM groups. Multivariable GLM with gamma distribution and a log link was used to assess burden and associations with FL DA/DM. Next, we assessed the accumulation of any DA or DM diagnosis within families. Survey weights were applied, with results reported as marginal effects.

Families with DA+DM had the highest number of FL comorbidities, and the highest family burden (8.8%) compared to those with DM only (5.9%), DA only (5.7%), and no DA/DM (3.7%). After adjustment, mean family burden remained highest for families with DA+DM (6.3% [4.7, 7.9]), versus DA only (5.3% [4.7, 5,9]), DM only (5.1% [3.2, 5.9]), and no DA/DM (4.4% [3.9, 4.8]). Families with at least three members with DA or DM had the highest burden (6.3% [4.4, 8.2]), additional diagnoses did not increase burden.

Families facing both DA and DM bear the highest OPE burden, which significantly impacts their income. This underscores the pressing need for targeted interventions and support mechanisms to alleviate the financial strain on these families. Addressing the financial challenges these families face is crucial not only for their economic well-being but also for improving overall health outcomes and quality of life.

Environmental factors

Social policies as structural determinants of worker heat resilience: A conceptual framework using paid sick leave as a case example Leah Schinasi* Leah Schinasi, Augusta Williams, Claire Moore, Alina Schnake-Mahl,

Objective: Even when implemented and followed, occupational heat safety standards may fail to fully protect biologically sensitive laborers against heat stress, heat illness or heat injury. Broad social policies, like paid sick leave, may be critical for promoting heat resilience in workers. We aim to describe a conceptual framework linking social policies with worker heat resilience.

Material and Methods: We conducted an iterative review of peer-reviewed literature on the following topics: heat stress; occupational heat illness, injury, or death; heat vulnerability; and links between paid sick leave policies and well-being. The results from the literature review support a conceptual framework that delineates links between paid sick leave policies and worker heat resilience.

Results: The human body experiences overheating and heat stress when the internal heat it generates (e.g., through physical activity engagement) exceeds the amount that it dissipates to the external environment. The body’s ability to dissipate heat – through convection, radiation, and evaporation mechanisms – is determined by underlying physiology, including body surface area, body mass, aerobic fitness, and underlying chronic conditions (e.g., diabetes or hypertension). Broad social policies may be important structural determinants of these underlying physiological characteristics, by shaping access to health prevention and restoration opportunities and services. For example, paid sick leave policies, which compensate workers for time taken off work due to illness, disability, or, at times, to allow preventative care or diagnosis activity, have been associated with greater use of preventative healthcare services, and have been linked with lower rates of acute respiratory illness, illness, and cardiovascular disease, as well as better underlying health.

Conclusion: Drawing from the peer-reviewed literature on heat stress, heat vulnerability, paid sick leave policies, and population health, we have developed a conceptual framework that supports a research and policy agenda that considers the importance of social policies as critical structural determinants of climate and heat resilience.

Health behaviors

Hip-Hop Rx: Measuring Black Mental Health. Kyra Rost* Kyra Rost,

The mental health of Black Americans is surely impacted by complex racist practices and systems, with ample research on the connections between social inequalities and mental health disparities, revealing how social disadvantages and stressors have the power to impact one’s mental health. Within research that is engaging the Black community, there remains a lack of a culturally appropriate measure of mental health that is inclusive of Black opinions, culture, and expression, Hip-hop music. This study seeks to answer “How does Hip-hop music address mental health” to call for health scholars to use Hip-hop music as a culturally appropriate site of engagement to understand Black mental health. To understand how Hip-hop music engages with mental health dialogues, I Qualitatively coded 500 songs from the Billboard “Year-end charts: Hot Rap songs” from the years 2013 to 2023. Preliminary results reveal that Hip-hop music is engaging in dialogues about depression, suicide, and substance dependency. The songs revealed that Hip-hop music directly addresses negative mental health statuses like depression and that artist are rapping about a direct connection to suicide as a plausible answer. Additionally, the reliance on substance usage as necessary to mediate stress through artist-based narratives, was evident and may be due to the overall need to cope with stressors in ways that do not involve professional assistance, due to stigmas, stereotypes, and the targeting of drugs and alcohol on racial minority communities. These findings are critical in understanding ways that Black Americans are dealing with and expressing their own challenges with mental health symptoms and coping strategies. The findings suggest that more attention should be given to exploring innovative ways to interpret Black mental health through culturally appropriate avenues.

Health care/services

The role of medical mistrust in racial and ethnic inequities in postpartum depression care

Sarah Haight* Sarah Haight, Jamie Daw, Chantel Martin, Jaime Slaughter-Acey, Sarah Verbiest, Brian Pence, Joanna Maselko,

Background: Given racial and ethnic disparities in postpartum depression care, it is vital to identify the mechanisms behind these inequities and in turn, opportunities for intervention. Among a sample with postpartum depressive symptoms (PDS), we examine the relationship between medical mistrust based on identity (MMBI) and postpartum depression diagnosis and care by race and ethnicity.

Methods: Data are from the 2020 Postpartum Assessment of Health Survey (PAHS) as an extension of the Pregnancy Risk Assessment Monitoring Survey (PRAMS). The analytical sample included respondents with PDS (PHQ-23 on PRAMS at 2-6 months postpartum) who delivered in 7 US jurisdictions. Additional self-reported measures were from PAHS at 12-14 months postpartum: MMBI (Group-Based Medical Mistrust Scale), perinatal depression diagnosis by a provider, receipt of postpartum mental health care, and race and ethnicity. Survey-weighted risk ratios (RR) and 95% confidence intervals between a 1-unit increase in MMBI and depression diagnosis and care were calculated overall and by race and ethnicity.

Results: Among 425 respondents with PDS, average MMBI was 31.2 (SD: 5.5; range: 12-60). MMBI was higher among non-Hispanic (NH) Black (33.5[31.4-35.7]) than NH white (30.0[28.9-31.1]) individuals. Overall, MMBI was not meaningfully associated with a reduced likelihood of depression diagnosis (RR:0.99[0.94-1.06]) or care (RR:0.99[0.96-1.01]). Although there was some evidence that the association differed by race or ethnicity (e.g. RR for diagnosis among Asian, Native Hawaiian/Pacific Islander, Middle Eastern, or North African:0.79[0.39-1.62]; RR for diagnosis among NH Black: 0.93 [0.78-1.11]), estimates were imprecise with wide confidence intervals.

Conclusion: Among this sample with PDS, MMBI was higher for NH Black participants, compared to NH white, but medical mistrust was not associated with a decreased likelihood of receiving a depression diagnosis or care, regardless of race and ethnicity.

Health care/services

Developing and Assessing Readability of Health Education Materials for Eye Care in Liberia

Anza Rizvi* Anza Rizvi, Fatima Rizvi, Niranjan Pehere,

Printed health education materials are extensively employed to enhance awareness and knowledge, shift attitudes and beliefs, and assist individuals in adopting and sustaining healthy lifestyle habits. The challenge of delivering effective health education to diverse populations is compounded in regions with high rates of illiteracy and limited access to healthcare facilities. The American Medical Association (AMA), National Institutes of Health (NIH), and Centers for Disease Control and Prevention (CDC) recommend that medical information for the public be written at no higher than an eighth-grade reading level. In response to the critical need for accessible eye health education in Liberia, the initiative led to the creation of culturally sensitive, easy-to-understand health education materials. We conducted a thorough review of the literature on patient education material before starting the study. Health educational materials were developed to address the most prevalent eye conditions within the Liberian population. A local Liberian artist worked with the team to develop the illustrations. To assess the readability of each health education material, we utilized five distinct readability tools: Flesch Reading Ease score, Flesch Kincaid Grade Level, Gunning Fog Index, Coleman-Liau Index, and SMOG Index. Results indicated that the mean (SD) word count of the health education material was 128 (215.0), the mean (SD) Gunning Fog Index was 4.0 (2.6), the mean (SD) SMOG Index was 5.9 (2.0), the mean (SD) Coleman-Liau Index was 4.4 (3.6), the mean (SD) Flesch Reading Ease was 88.6 (5.2), and the mean (SD) Flesch-Kincaid Grade level was 2.7 (1.4). This initiative tailors health education materials to be accessible and understandable for the Liberian population, empowering them with the knowledge to prevent vision loss and aligning with recommended reading levels to address the need for culturally appropriate eye health education.

Health equity

Measuring the Mortality Implications of Value-Based Insurance Design Among Individuals with Diabetes and Low Incomes Kimberly Narain* Kimberly Narain, Bryan Tysinger, Norman Turk, O. Kenrik Duru, Tannaz Moin, Carol Mangione,

Research Question What are the long-term implications of a diabetes-focused employer-sponsored Value-Based Insurance Design (VBID) strategy for mortality and healthcare spending among individuals with Type 2 diabetes and low incomes?

Data/Methods The Future Elderly Model (FEM), a dynamic microsimulation model was used to address this research question. The FEM is based off of the Health and Retirement Survey (HRS), supplemented with medical spending data from the Medicare Current Beneficiary Survey for elderly individuals and the Medicare Expenditure Panel Survey data for non-elderly individuals. FEM transition states are contingent on demographics, cardiovascular disease risk factors, health conditions and functional status. The FEM models total medical spending, Medicare spending, Medicaid spending and out-of-pocket costs. To estimate the long-term mortality implications of the DHP, FEM mortality transitions were adjusted based on the DHP-effect estimates for medication adherence and the relationship between medication adherence and diabetes-related mortality observed in the literature. FEM lifetime healthcare spending estimates under the DHP were off-set by the cost savings projected from reduced hospital and emergency room utilization associated with increased medication adherence observed in the literature. FEM spending estimates were also augmented by projected increases in medication spending. Simulations (traditional health insurance and DHP coverage) were run until everyone in the model died. For each scenario, every individual was run through the simulation 100 times and mortality (life years) and healthcare spending was averaged across all simulations. The study population was non-elderly adults with employer-sponsored insurance with diabetes and household incomes ≤$30,000.

Preliminary Results Exposure to the DHP was projected to lead to a 0.33-year increase in life-expectancy at a cost of $19,000 per life year among individuals with low incomes.

Health equity

Co-design process of designing a culturally appropriate pediatric oral health education for Chinese American families

Yaena Song* Yaena Song, Ashley Brodigan, Chantelle Tseng, Cathy Chen, Qiuqu Zhao, Simona Kwon,

Background: Oral health is critical for heathy daily life and cavities are one of the most common chronic diseases, yet there is a lack of culturally appropriate and in-language oral health resources for Chinese American (CA) immigrants, the largest Asian American subgroup. In Sunset Park, also known as “Brooklyn’s Chinatown,” the CA pediatric population experiences poor oral health. This project aims to develop a culturally-tailored and in-language pediatric oral health education program using a participatory health communication approach. **Methods**: We conducted a mixed methods study, including: 1) a review of existing oral health resources in English and Chinese from the U.S., China, Hong Kong and Taiwan; 2) key informant interviews with providers from a safety net clinic serving a largely CA patient population and community stakeholders (n=8), including pediatric dentists, hygienist and community leaders; 3) a focus group and interviews with CA parents (n=6); and 4) a listening session with CA bilingual community health workers (n=7) serving the CA patient population. Data collection was guided by health communications approach and attuned to examining cultural domains of surface and deep culture. **Results**: Findings validated the need for pediatric oral health education materials. Existing evidence-based resources are being culturally adapted based on the findings at the surface and deep culture levels. These includes centering intergenerational households and school readiness for this pediatric target population. Workflows for pediatric dental referrals at the safety net clinic is also being examined for intervention points both in the pediatric medical and dental departments. Drafts of oral health program have been adapted based on the study findings and will undergo user-review. **Conclusions**: Our mixed methods approach has informed a multilevel intervention to address this health disparities gap. Applying a participatory and culture-centered health communication approach will be key to developing meaningful and actionable education materials.

Health equity

911 Calls, Surveillance Stress, & Neighborhood Health: How Suspicious Person Calls Shape Neighborhood Health Christopher Robertson* Christopher Robertson,

Extant literature finds an association between neighborhood rates of police stops (involving frisks and pat downs) and chronic health conditions due to the surveillance stress resulting from vicarious police contact (Sewell and Jefferson 2016). However, these studies have yet to consider the role of citizens' demands for police in shaping this relationship. Drawing on Minneapolis PD stop and local hospital insurance claims data, I use weighted negative binomial regression models to examine how the rate of 911 calls reporting a suspicious person per total police stops from 2017 to 2019 are correlated with Census block rates of stress-related physical (i.e., hypertension and diabetes) and mental health conditions (i.e., anxiety and depression) diagnoses per 1,000 block group residents. I also examine racial disparities in health outcomes by considering the influence of the proportion of 911 calls on stress-related conditions for White and Black residents per capita. This analysis will increase our knowledge of policing and health by exploring how citizens' demands for policing influence surveillance stress and disparities in police contact.

Health equity

Towards Health Liberation, Reflecting on bell hooks’ Representations of Whiteness in the Black Imagination

Kene Orakwue* Kene Orakwue,

In daydreaming of a world, where everyone is not only healthy but thriving, calls to question, how do we eradicate racial health inequities? Key points from bell hooks’ Representations of Whiteness in the Black Imagination may help strengthen health equity scholars’ understanding of race in a health context.

hooks’ Representations of Whiteness in the Black Imagination, traces the existence of whiteness in the Black imagination over time. She reminds readers that the creation of other and harmful stereotypes by the white imagination has resulted in terror and hypervigilance in the Black imagination. These insights can be applied to healthcare to better understand the prevalence of health inequities, physician racial bias, and medical mistrust. This essay goes on to reflect on hooks’ points of otherness, imagination, travel, and how these insights can be applied to healthcare. hooks’ concludes with, “ Critically examining the association of whiteness as terror in the black imagination, deconstructing it, we both name racism’s impact and help to break its hold. We decolonize our minds and our imaginations “ (hooks, 2006). Ultimately when whiteness no longer equals terror then it cannot dominate nor rule through fear.-this is what is required for health liberation.

Health equity

Heterogeneity Among the Vaccine Hesitant Jessica Bishop-Royse* Jessica Bishop-Royse, Marie Statler,

The disproportionate vulnerability of racially marginalized communities to the emerging COVID-19 pandemic is the result of historical policy systemically restricting access to resources and opportunities. Racial disparities in COVID-19 vaccine uptake are among the lingering aftermath of the United States' institutionalized racism, as well as mistreatment of these communities by the medical establishment. Despite public health campaigns promoting vaccination, marginalized communities continued to face barriers that impeded their access to and acceptance of COVID-19 vaccines.

Our analyses examine heterogeneity among the vaccine hesitant in a nationally representative survey on COVID-19 behaviors and beliefs. These data were collected by 21 sites that were part of the NIH-funded CEAL initiative. These sites were dispersed throughout the U.S., each focused on specific populations, such as rural adults and tribal nations communities.

Overall, about 12.32% of the sample (n=1565) participants reported not receiving any COVID-19 vaccine. We find substantial racial differences in vaccine uptake; about 15% of Black/African American participants reported not receiving any COVID-19 vaccine. The lowest level of refusal was among Asian participants (3.06%) and White participants refused the vaccine at 3x that (9.61%).

Stepwise logistic regression models on the full sample show that trust in the safety of the vaccine, Everyday Discrimination Scale, as well as trust in medical professionals, and education are each significantly related to having received at least one dose of the vaccine. Most of these associations are maintained in the full model, except for the Everyday Discrimination Scale, which becomes insignificant with the inclusion of education. The persistent associations with trust in the safety of the vaccine, trust in medical professionals, as well as education and race suggest that there are layers of complexity to the problem of racial inequities in vaccine uptake.

Illicit drug trends and drug contamination

How common is fentanyl contamination of methamphetamine and cocaine? Crime lab data from Ohio Madeline Hooten* Madeline Hooten, Lance Ruther, Patricia Timmons, Kaylin Sweeney, Matthew Juhascik, Ashley O’Connell, Raminta Daniulaityte,

There has been a significant rise in overdose deaths in the US, testing positive for both illicitly manufactured fentanyl (IMF) and psychostimulants, such as methamphetamine (MA) and cocaine (COC). The number of overdose deaths in the US involving both psychostimulants and synthetic opioids increased from 5,716 in 2015 to 32,537 in 2021. Although numerous studies have shown an increasing trend of intentional co-use of IMF and psychostimulants, less is known about the potential of unintentional exposures to IMF among individuals who use MA and/or COC. The present study aims to characterize trends in MA and COC contamination with IMF through the analysis of crime lab data on drug seizures in Montgomery County, OH, an epicenter of the opioid crisis.
Data on seized drugs from the Miami Valley Regional Crime Lab (2016 – 2021) were analyzed to extract information on cases that tested positive for MA/IMF and COC/IMF. Descriptive statistics were used to characterize the trends regarding the quantity, weight, form of the drug seized, and other drugs identified. Bivariate analyses were conducted to assess changes over time.
Crime lab data showed significant shifts in seized drug trends. IMF cases increased from 1089 in 2016 to 1,786 in 2017 and then declined to 1,048 in 2021. In contrast, heroin declined from 1,441 in 2016 to 120 in 2021. MA surged from 546 in 2016 to 1380 in 2019 and 1321 in 2021. COC cases declined from 1596 in 2016 to 718 in 2021. Of all MA-positive cases, drug mixtures containing MA/IMF increased from 0 in 2016 to 99 (7.0%) in 2021, and the total weight of MA/IMF increased from 13 grams in 2017 to 1,592 grams in 2021. Among COC-positive cases, COC/IMF mixtures increased from 8.2% in 2016 to 17.9% in 2019, decreasing to 13.8% in 2021. The total weight of seized drugs testing positive for COC/IMF varied from 181 grams in 2017 to 654 in 2018 and 373 grams in 2021. In 2021, MA/IMF and COC/IMF mixtures showed an increase in fentanyl analogs and other drugs.

Infants/children/youth

Association Between Neonatal Abstinence Syndrome Incidence and Male Twin Birth Patterning in the US

Parvati Singh* Parvati Singh,

The patterning of male twin live births in a population may respond to adverse socioecological conditions, characterized by research as “collective optimism”. In concordance with expectations from the theory of selection in utero which posits that populations respond to adverse circumstances by altering the sex ratio of offspring, studies show a decline in male twins following increased suicides at the population level. The quantification of “collective optimism” through suicides, however, does not offer a direct link to birth outcomes. We use the monthly incidence of births diagnosed with Neonatal Abstinence Syndrome (NAS, withdrawal condition in newborns resulting from prenatal exposure to addictive substances) as a direct indicator of population-level exposure to harmful substances in-utero, and examine consequent changes in the patterning of male twin live births in the US. We utilize national monthly counts of male twin live births, male singleton live births from CDC WONDER, and national monthly counts of NAS births from the National Inpatient Sample database (2003-2019, 204 months). Our analytic data comprise a total of 1,129,713 male twin live births, 333,291 NAS births and 33,850,336 male singleton births, with a monthly mean of 5538, 1634 and 165,933 respectively. We apply ARIMA time-series methods to examine whether male twin live births decline within 0-4 months following higher-than-expected increase in monthly counts of NAS births, controlling for male singleton births and autocorrelation. Results from time-series analyses indicate a decline in male twin births 4 months following increased NAS births in the US, with 100 additional NAS births preceding a decline in 12 male twin live births 4 months later. Our findings contribute to our understanding of the complex interplay between societal challenges and reproductive outcomes, and underscore the potential impact of substance use crises on biological responses within populations.

LGBTQ+

Polycystic Ovary Syndrome and Endometriosis Diagnosis Disparities by Sexual Orientation and Gender Identity: Moderation by Race/Ethnicity and Health Insurance Status Victoria D. Kolbuck* Victoria D. Kolbuck, Colleen A. Reynolds, Brittany M. Charlton,

Background: Research indicates sexual and gender minorities (SGM) experience reproductive health disparities compared to their heterosexual and cisgender peers. Previous studies on polycystic ovary syndrome (PCOS) and endometriosis diagnosis across SGM-status have had conflicting results, and this study aims to understand whether diagnosis disparities are moderated by race/ethnicity and/or insurance status.

Methods: Survey data from the Fall 2019–Spring 2020 National College Health Assessment were analyzed. The sample was comprised of students ages 18–25 whose sex assigned at birth is female (n=48,268). We fit eight log-binomial regression models controlling for age to estimate the prevalence of PCOS or endometriosis diagnosis by sexual orientation or by gender identity. Moderation was assessed on both the multiplicative (ratio of ratios) and additive (relative excess risk due to interaction [RERI]) scales.

Results: SGM individuals had a higher prevalence of PCOS or endometriosis diagnosis compared with heterosexual and cisgender peers. A positive multiplicative interaction was found in one model, indicating non-Hispanic white sexual minorities had higher prevalence of PCOS diagnosis compared to racial/ethnic minority heterosexuals (interaction risk ratio: 1.27; 95% CI: 1.03–1.57), though this interaction was not found on the additive scale (RERI: 0.26; 95% CI: 0.00–0.52). We did not find significant evidence of effect measure modification in any other model. Diagnosis prevalence was highest among SGM individuals who were non-Hispanic white and SGM with health insurance. Insurance status did not moderate the relationships between diagnosis, sexual orientation, or gender identity.

Conclusions: PCOS and endometriosis diagnosis disparities exist between SGM and heterosexual and cisgender peers.

Mental health/function

Depression is purple, but unmet need for treatment is red Catherine Ettman* Catherine Ettman, C. Ross Hatton, Brian Castrucci, Sandro Galea,

As depression becomes more visible in the public conversation, it has also become bound in national divides, with suggestions that depression is more likely among persons who affiliate with one political party. We sought to assess 1) whether depression is associated with political party affiliation and 2) the use of mental health care by political affiliation. Using a nationally representative sample of U.S. adults (N=2,325) surveyed in March-April 2023, we assessed the relation between political party and 1) positive screen for depression (PHQ-9>9) or anxiety (GAD-7>9), and 2) self-reported use of a mental health care provider in the past 12 months. We used logistic regression models and adjusted for social and economic characteristics to test for differences by political party in the predicted probability of a positive PHQ or GAD screen and reporting not having seen a mental health provider in the past 12 months. Adjusted models controlled for: sex, race and ethnicity, age, education, household income, home ownership, parent status, marital status, and metropolitan status). The weighted prevalence of depression was 19.2% among Republicans and 24.2% among Democrats, but these differences were not statistically significant (p=0.07). In adjusted models controlling for sociodemographic factors, the adjusted prevalence of depression was 21.2% among Republicans and 25.3% among Democrats (p=0.152). However, in both unadjusted and adjusted models, Republicans were significantly more likely (88.3% in unadjusted and 86.8% in adjusted) to report not having seen a mental health provider in the past 12 months relative to Democrats (76.2% in unadjusted models <0.01 and 76.6% in adjusted models, p <.01). Results were consistent for symptoms of anxiety. Poor mental health is common across Democrats and Republicans; however, use of mental health care is lower among Republicans than Democrats. Lower use of mental health care may be due to stigma (demand) or lack of access to health care (supply). Mental health and access to mental health care may be bipartisan public health topics to pursue during the 2024 election and in coming years. Mental health could be a national priority that unites the U.S. population in increasingly divided times.

Mental health/function

Digitalization and Social-Technical Production & Reproduction of Health Disparities: Cyberbullying and Adolescent Children's Mental Health Yuying Shen* Yuying Shen, Heather Richter, Bridget Giles, Elizabeth Dungee-Anderson, Carlene Turner,

Background: Society is undergoing a fundamental transformation because of increasing digitalization, which offers great opportunities in all areas of society, but also requires new skills and poses new challenges. Children's immersion in screens, their fast adoption of digital technology, and their increasing interactions with virtual worlds has spurred creativity and has expanded children's access to a wealth of information and their platforms to socialize with others. While some of the promises of virtual connectivity in helping children are obvious, the continued proliferation of digital technology also poses risks to children's safety, privacy, and well-being. In addition, the technology does not make us all equal to enter the "flat world." There are additional concerns related to the digital potential of aggravating the existing disparities in social life. The increasing application of digital technology is restructuring the fabric of children's social life. One among the challenges is to conceptualize and navigate the potential of the increasing digitalization in impacting children's health and well-being.

Objective & Research Question: In response to the increasing prevalence of children's social estrangement in real life and the virtual connectivity in the digital world, the present study designs an interdisciplinary study, intersecting social and behavioral study with cybersecurity perspective, to define the challenges confronting children and to explore feasible countermeasures to advance mental health equity and healthy development of children in digital age. The specific research questions that will be investigated in this study include: (1) How does children's increasing digital engagement create digital divisions and digital disparities in the tech era? (2) How does children's cyberbullying experience impact their mental health and well-being?

Methodology: We collected data with survey questionnaires of structured closed -ended questions among a randomly selected representative sample of 320 adolescent children (age 12-17 years) living in a wide variety of community settings in the Hampton Roads area in Virginia, tapping and characterizing children's social characteristics, their digital engagement, their cyberbullying experiences, their cybersecurity awareness, and their mental health and well-being. We obtained parental consent and personal consent to participate in the study from all these children. A series of statistical models were then processed to examine the patterns of children's digital engagement and cyberbullying experiences, their mental health outcomes, and associations between these aspects of their life.

Results & Conclusion: Statistical analysis results from the data indicate that there exist disparities in children's digital engagement patterns, their cybersecurity awareness, and their experiences of cyberbullying. Our statistical analysis also presents the association between children's social demographic factors, their digital engagement patterns and their cyberbullying experiences. Statistical results further support the relationship between children's cyberbullying experiences and their mental health. Findings from this study imply that how to enhance the individual flourishing in an increasingly digitalized era requires further discussions from different perspectives to recognize both the opportunities and challenges and to generate innovations to foster children's safety and healthy development.

Methodological approaches to studying public health

CHARACTERIZING SPATIAL SOCIAL POLARIZATION MEASURES: A SYSTEMATIC REVIEW OF RECENT PUBLIC HEALTH RESEARCH Edwin McCulley* Edwin McCulley, Deiriai Myers, Lisa Frueh, Sam Jaros, Felicia Bayer, Gina Lovasi, Hoda Abdel Magid,

Spatial social polarization (SSP) refers to the uneven spatial distribution and subsequent concentration of polarized social and/or economic groups in a specified geographic area. However, there is heterogeneity in how SSP is measured and operationalized in public health research. To this end, we conducted a systematic review to characterize the use of SSP measures in public health research since 2007, which provides a foundation for those seeking to navigate this complex literature, select measurement options, and identify opportunities for methodological development. Using Covidence, a web-based collaboration platform, we reviewed and included 117 studies. We found a growing body of evidence that was primarily set in the United States (n=104), published between 2020 and 2024 (n=52), and focused on non-communicable diseases (n=40). We identified 23 unique SSP measures, with the Index of Concentration at the Extremes (n=43) being the most commonly used. While most studies employed a single SSP measure (n=64), some studies included up to five measures to examine the robustness of findings, or to identify how a multidimensional approach to SSP affected associations and explained variation for a given health outcome. Some studies also utilized composite SSP measures (n=31) based on numerous underlying variables spanning several domains such as education, race/ethnicity, and income. This systematic review fills a critical gap in the literature by summarizing options for operationalizing SSP measures in public health research and documenting their respective methodologies. Future research should consider using multiple SSP measures to capture the multidimensionality of SSP, widen the scope of health outcomes, and clearly explain the methods used to derive SSP measures. Our findings can inform future research questions and help guide researchers in the selection and utilization of the various SSP measures.

Methodological approaches to studying public health

Considering the History of Public Health: Quantification and AntiBlackness’ Impact on Maternal Mortality Rates in the US. Ashley Nurse* Ashley Nurse,

In the United States, researchers have found that Black women disproportionately bear the burden of early maternal death. Although cardiovascular diseases like myopathy and preeclampsia are listed as the leading causes of their death, the racism embedded within societal structures, institutions, and processes specifically targets this demographic and constructs their death. This insufficient contextualization common in the domain of demographic and statistical disease tracking in Public Health has a long history of not only ignoring complex social and economic factors but also reinforcing racism in American society. As the dominant mode of knowledge production and dissemination, they result in the exacerbation of maternal health disparities, instead of their reduction.

The value Public Health places on quantification centers a form of “objectivity” which can only be obtained through numerical data measurement. As a result, other types of data – stories, anecdotes – become viewed as inferior and peripheral to “real” data, which forecloses the potential for individual narratives to be seen as valuable. This can have great implications for how data is conceptualized and thus operationalized within the Public Health domain, especially when used to address the disproportionate mortality outcomes for populations who have been historically oppressed within American society.

This paper argues that the conceptualization of statistics/numbers as data and not [also] the lived experiences of Black women, facilitates the dehumanization and desensitization of Black women that can prevent the creation of targeted and necessary interventions that would increase their survivability during childbirth. I draw from discourses and criticisms from Black Studies and Historians of Public Health, to critically examine existing Public Health literature surrounding Black maternal health outcomes. Additionally, I aim to employ a Black Feminist framework to reimagine Black stories/narratives, not simply as supplementary to, but as data itself within Public Health to combat the declining life expectancy of Black mothers in the United States.

When Black women’s realities are not considered, the specifics of the structural racism and harm they experience are obscured and smothered by the veil of “quantification”. If the field of Public Health were to take this re-framing/reshifting of data seriously, new methodologies could lead to more targeted/specific interventions for Black women that improve their health and well-being.

Migration

How far and how great: Residential transitions and health in young to mid-adulthood Anna Shetler* Anna Shetler,

The relationship between residential transitions and health remains understudied. In this paper, I examine how distances of residential transitions are associated with allostatic load in young to mid-adulthood. Building from eco-social, migration, and demographic theories, conflicting hypotheses arise: (1a) better health predicts relocation, (1b) better health predicts staying in place. Additionally, I hypothesize that (2a) individuals who move short distances (<50km) are expected to have the worst health over time, compared to long-distance movers and stayers; and, (2b) long-distance movers are expected to have the best health, compared to both short-distance movers and stayers. I study these hypotheses stratified by race to uncover how lived experiences of Black and white Americans may impact the relationship between moving and health.

I use data from the National Longitudinal Study of Adolescent to Adult Health (Add Health, n = 2,755). I find that young adults with more education are more likely to move, while those with greater economic resources and children are more likely to stay in place. Results suggest that selection and stratification are active in the binary act of internal migration, and that these selection and stratification forces may diverge among distances of internal migration. On average, long-distance (>50km) movers have better health than short-distance and stayers, as measured by allostatic load. I find that among white individuals, stayers have worse health than those who move long distances; however, this relationship is reversed among Black/African American individuals. Stayers may be “stuck in place” (Sharkey, 2013) an increasingly common phenomenon for Black Americans and those experiencing high poverty – but with divergent outcomes for health. Results suggest that while moves and their distances are indeed stratified, larger social structures of race, class, and gender play a critical role in affecting the experiences of stress, and hence health, in the United States.

Migration

Examining structural supports offered to resettled refugees in 10 host countries – a scoping review acknowledging health in all policies Jessica Farangaiz Saifee* Susitha Wanigaratne, Andrea Macikunas, Lea Wenger, Janavi Shetty, Jessie Cunningham, Eline Skirnisdottir Vik, Eric Russell, Karla Fredricks, Astrid Guttmann, Julia Brandenberger,

Background: The United Nations High Commissioner for Refugees mandates countries participating in its resettlement program to have policies directing the provision of essential supports and services during resettlement. Our research aimed to 1) summarize and compare the resettlement supports offered across countries, 2) examine refugee experiences with these supports.

Methods: The 10 countries resettling the largest number of refugees in 2021 (United States [US], Canada, and 8 European nations) were included. We summarized and compared the structural supports described in official documentation across these nations. To capture the experiences of refugees and service providers regarding met and unmet needs in the first year of resettlement, we conducted a scoping review of literature from 1995 to 2022, sourced from four bibliographic databases. Two reviewers screened titles, abstracts, and full-texts for inclusion. One author extracted relevant data from all studies and a second author from a 30% sample. We enumerated study characteristics and descriptively summarized unmet and met needs.

Results: For aim 1, the US and Canada provide comparable financial aid, albeit with regional variation. Both countries offer publicly funded healthcare, though time-restricted in the US. In our scoping review (aim 2), 61 studies qualified (US=35, Canada=25, UK=1). Among Canadian studies, only two included children and seven focused on Syrian refugees. Documentation of unmet healthcare needs was common (n=20), including language barriers and a lack of culturally appropriate care. Unmet financial needs were also common (n=13) including inadequate amounts and length of support and lacking access to suitable jobs. Met healthcare needs were also common (n=12).

Conclusion: Despite high levels of resettlement only one European study was eligible for the review. Refugees in Canada described numerous unmet resettlement needs. We will complete our review, adding US studies, in the months ahead.

Mortality

Investigating Adolescents’ Perceived Survival Expectations as a Predictor Premature Mortality Carlyn Graham* Carlyn Graham, Robert Hummer, Carolyn Halpern,

Adolescents’ perceived survival expectations have been linked to adulthood physical and mental health, risk behaviors, and socioeconomic status. However, research has yet to consider whether adolescents’ perceived survival expectations predict mortality. Thus, the purpose of the present research is to investigate whether adolescents’ survival expectations predict risk of premature all-cause mortality among a nationally representative sample of participants in the National Longitudinal Study of Adolescent to Adult Health (Add Health). Using Cox proportional hazard models, we estimate adolescents’ perceived likelihood of survival to age 35 at the Wave I (baseline) interview (1994-95) as a predictor of premature all-cause mortality up to the last known vital status of Add Health participants in December 2021. We also stratify analyses by sex, race/ethnicity, and the intersection of sex and race/ethnicity to determine if adolescents’ survival expectations are similarly predictive of mortality across subpopulations. Our results indicate that prior to adjusting for controls, in the overall sample, individuals who perceived they had a 50% chance or less of survival to age 35 in adolescence had a significantly higher risk of mortality than individuals who were almost certain they would survive to age 35. The inclusion of adolescent mental and physical health indicators and risky behaviors reduced this risk to statistical nonsignificance. We also found, though, that perceived survival expectations was a significant predictor of mortality net of a wide array of mortality risk factors among some of the subgroups. Specifically, females who perceived they had a 50% chance or less of survival to age 35 had a significantly greater risk of mortality than their female peers who were almost certain they would survive to age 35; however, this pattern was limited to non-Hispanic White females when race/ethnicity was taken into consideration.

Place/Communities

The Heart of the Matter: Neighborhood Violent Crime and Deprivation, Cardiometabolic Disease, and the Racial Invariance Thesis Kendall Riley* Kendall Riley, Mark Berg, Man Kit Lei,

Studies have observed a tight spatial coupling of elevated violent crime rates, structural deprivation, and cardiometabolic disease prevalence across geographic areas. Conceptual perspectives in the health sciences provide a framework to explain this geographic concentration of poor health and crime. Drawing on these different conceptual approaches, the current study uses administrative and survey data aggregated to Census tracts to isolate the independent roles of violent crime and structural deprivation as risk factors for cardiometabolic disease prevalence. It also tests whether these patterns are invariant across neighborhoods with different racial and ethnic compositions. Results from regression models show that levels of cardiometabolic disease vary directly with both violent crime and structural deprivation. The findings provide mixed evidence of racially invariant associations. The results are discussed in terms of their implications for prevention models focused on reducing modifiable risk factors of poor health in local geographic areas.

Policy

Increased food insufficiency after COVID-era SNAP emergency allotments expired: A quasi-experimental study Rita Hamad* Whitney Wells, Kaitlyn Jackson, Cindy Leung, Rita Hamad,

In response to economic distress and food insecurity during the COVID-19 pandemic, the US Congress expanded the Supplemental Nutrition Assistance Program (SNAP) by introducing Emergency Allotments (EAs) to increase monthly benefits starting in March 2020. In March 2023, EAs expired in the 35 states/territories still providing them. We provide some of the first evidence of the impacts of this loss of nutrition support—in some cases over $250/month—for economically disadvantaged households.

We examined the effects of SNAP EA expiration on food insufficiency, mental health, and financial well-being, using data from the US Census Household Pulse Survey. In difference-in-differences analyses, we compared pre-post differences among SNAP participants to pre-post differences among SNAP-eligible non-participants. We also examined subgroup effects by race/ethnicity and income.

The SNAP EA expiration led to a substantial increase in food insufficiency (8.4 percentage points; 95%CI: 5.5, 11.3). Black SNAP participants experienced a greater increase in anxiety symptoms (0.47; 95%CI: 0.13, 0.80) compared with White SNAP participants (-0.06; 95%CI: -0.25, -0.13) (p=0.01).

This study has implications for ongoing policymaking with respect to US nutrition and safety net programs to support vulnerable families, especially amidst inflated food prices.

Policy

California Tobacco Control Policies in the Comprehensive Plan: Connecting Public Health to Urbanism Bozhidar Chakalov* Miki Hong, Bozhidar Chakalov,

According to the US Department of Health and Human Services, urban planning and public health have an evidence-based association that speaks to the reduction of health disparities given an adequate built environment. Public health advocates have begun to address principles of community health by envisioning sustainable built environments. Public health advocates can help set local government agendas by their involvement in the creation of “comprehensive” plans. A comprehensive plan is a city or county’s decades-long term vision and goals for the physical development of the jurisdiction. Public health goals set forth in a comprehensive plan can showcase planning used to promote physical activity, clean transportation, and access to healthy food. The built environment is integral to a community’s capacity to promote longevity for its residents. We discuss the need to address the built environment to mitigate early childhood deaths associated with tobacco exposure, as well as the epidemic of chronic illnesses caused by smoking.

New updates of comprehensive plans currently underway in California offer resource-poor communities an avenue to integrate novel public health standards such as evidence-based tobacco control into their comprehensive plan. We examine the correlation between tobacco control recommendations in comprehensive plans and existing tobacco control legislation. For example, local efforts to pass smoke-free multifamily ordinances as specified by a city’s comprehensive plan is controversial. There is much inequity with multiunit housing as place-based limits (i.e., smoke-free housing) are less common among smoking families with older children, in neighborhoods that are predominantly Black and Hispanic, and in households in states characterized by a higher smoking prevalence. We aim to build capacity for tobacco control by supporting smoke-free multiunit housing policy within comprehensive plans and we discuss legislative precedents and championing.

Race/Ethnicity

Gaps in psychiatric care before and after the COVID-19 pandemic among patients with depression using electronic health records Catherine Ettman* Catherine Ettman, Carly Lupton-Brantner, Elena Badillo Goicoechea, Priya Dohlman, Grace Ringlein, Jason Straub, Fernando S. Goes, Elizabeth Stuart, Peter Zandi,

The COVID-19 pandemic caused disruption to health services. It is unclear if disparities in mental health care use emerged after the start of the COVID-19 pandemic. We aimed to understand: (1) Did interruptions in mental health care change for patients with depression after relative to before March 2020? (2) Were there differences in interruptions to mental health care across patient groups? We used electronic health records (EHR) from two adult Community Psychiatry Programs (CPP) in the Johns Hopkins Health System to detect mental health care gaps of 6 months or more in mental health service utilization in the 21 months before and after March 2020. Our study sample included patients with a depression diagnosis seen annually between October 1, 2017, and September 30, 2022 (n=767 patients). We used separate logistic regression models with an interaction between time (pre- versus post-pandemic) and each patient characteristic, controlling for all other characteristics, to assess differences in the change in care gaps over time across groups. First, there were no characteristics associated with mental health care gaps before or after the Pandemic. Second, there was a decline in gaps of care from pre- to post-pandemic for this patient population. The number and percent of patients with care gaps decreased from 71 (9.3%) to 39 (5.1%) in the 21 months after March 2020 relative to the 21 months before it. All groups except persons employed full time saw reductions in care gaps. Although the odds of having a gap were not different across different patient groups before or after the Pandemic, some groups did experience greater reductions in mental health care gaps: White relative to Black patients, patients living in lower socioeconomic areas to relative to higher socioeconomic areas, unemployed and other employed relative to fully employed patients, and older relative to younger patients saw greater reductions in mental health care gaps. Mental health care gaps declined after relative to before the start of the COVID-19 pandemic, but vigilance is needed to ensure that disparities in access to mental health care do not emerge across patient groups.

Race/Ethnicity

White supremacist murders of Black persons and Black youth suicides in the US, 2010-2019: A Time Series Analysis. Parvati Singh* Parvati Singh,

Black youth may experience differentially higher exposure and exhibit greater psychiatric vulnerability to racist events. White supremacist incidents of violence resulting in murder arguably form one of the most extreme and visible forms of overt racism. White supremacist incidents resulting in murder of Black persons may signal surges in racist sentiments nationally that, in turn, may increase risk factors for suicide mortality among Black youth. We examined the temporal relation between national monthly trends in white supremacist murders of Black persons and suicide mortality among Black youth 5-24 years of age in the US, from 2010 to 2019 (120 months). For our exposure variable, we retrieved national counts of white supremacist murders of Black persons from the Anti-Defamation League (ADL) hate and extremism incidents database for each month from 2010 to 2019. For our outcome, we retrieved monthly counts of suicides among black and white youth (age 5-24 years), by sex (male, female) suicides from the CDC’s Restricted Use National Vital Statistics Mortality database from 2010 to 2019. We applied Autoregressive Integrated Moving Average (ARIMA) time-series methods examine the proximate temporal relation between our exposure (using 0, 1, 2, or 3-month lags) and the outcome to gauge change in Black youth suicides within 0-3 months following exposure. Results from ARIMA time-series analysis show an increase in Black male youth suicides two months following an increase in White supremacist murders of Black persons (coeff= 3.9, $p < 0.01$). These findings suggest approximately 72 additional suicides among Black male youth statistically attributable to white supremacist murders of Black person over our study period. We fail to reject the null for increase in suicides among Black female youth. Suicide prevention strategies for vulnerable groups may need to consider the harm caused by socio-political factors that espouse or promote white supremacist ideology.

Social/relational factors

Self-employment, Health Behaviors and Health Outcomes among Latinx Women Lisette Collins* Lisette Collins, Frederick Ferguson, Kimberly Narain,

Research Question: To examine the association between self-employment, health behaviors and health outcomes among Latinx women.

Significance: Previous studies have demonstrated a positive relationship between self-employment and cardiovascular health. However, no studies have explored this question among Latinx women who may have different cultural, familial, and work experiences that impact this relationship.

Data/ Methods: We conducted a weighted pooled cross-sectional analysis of data (1993-2018) from the Behavioral Risk Factor Surveillance System to explore the association between self-employment, self-reported health outcomes (hypertension, obesity, diabetes, poor health) and health behaviors (smoking, binge drinking and exercise) among Latinx women. Each outcome was an indicator variable coded as “1” if the condition was present and coded as “0” if it was not. The primary predictor was an indicator variable that was coded as “1” if the individual reported self-employment and coded as “0” if the individual reported working for salary or wages. The statistical models were linear probability models (ordinary least squares regression applied to dichotomous outcomes) adjusted for age, education, marital status, household income, the number of minor children in the home, and health insurance coverage as well as state and year-fixed effects. The point estimates were predictive margins and the level of statistical significance was p-value < .05 level. The sample size included 159,380 employed (18,663 self-employed & 140,717 working for wages or salary**)**, Latinx women (ages 18-64).

Preliminary Results: Relative to working for wages or salary, self-employment was associated with a statistically significant 2.8, 5.9, 2.0 and 1.5 percentage-point decline in the probability of reporting hypertension, obesity, poor health and binge drinking, respectively as well as an 8.7 percentage-point increase in the probability of reporting exercise among Latinx women.

Socioeconomic status

Does my child’s education slow my cognitive decline and reduce my risk of dementia? Erika Meza* Erika Meza, Isabel Elaine Allen, Maria Glymour, Jacqueline Torres, Hector Gonzalez,

INTRODUCTION: Research suggests that having highly educated offspring benefits one’s late-life cognition. However, whether the association applies equally to older Hispanic and White adults remains unclear.

METHODS: We examined the link between offspring education and cognitive function and decline (1998-2018) in Hispanic and White US Health and Retirement Study participants (n=17,834) using linear mixed models. In a subsample of 14,205 cognitively healthy older adults, we estimated the possible incidence of cognitive impairment, no dementia (CIND), or probable dementia using Cox proportional hazard models. Models assessed for heterogeneity by ethnicity and, among Hispanic participants, by nativity.

RESULTS: Each year of offspring education >12 was associated with significantly higher cognitive scores at baseline (▯: 0.046 [95% CI: 0.041, 0.052]) and a slightly faster rate of decline (▯: -0.001 [95% CI: -0.002, -0.001]) for both Hispanic and White participants. Among Hispanic participants, each year of offspring education >12 was associated with a faster rate of decline (▯: -0.002 [95% CI: -0.003, -0.001]) for non-US-born participants but not for US-born participants. Each year of offspring education >12 was associated with a decreased hazard of possible CIND or probable dementia, with a greater decrease among Hispanic participants (Hazard Ratio: 5.1% vs 3.6%).

CONCLUSION: Our findings provide further evidence of between- and within-group differences in the link between offspring education and cognitive health. Future work should consider how multiple social identities may influence the mechanisms underlying the relationship between offspring education and late-life health.

Socioeconomic status

Education and Midlife Cognitive Functioning: Evidence about Mediators from the High School and Beyond Cohort Rob Warren* Rob Warren, Chandra Muller, Eric Grodsky, Jennifer Manly, Adam Brickman,

Educational attainment is associated with cognitive functioning and risk of Alzheimer’s disease and related dementias (ADRD). However, (1) aspects of schooling that precede degree completion have rarely been considered and (2) the social and biological pathways through which education shapes ADRD risk are not well understood. Do schools’ social and academic contexts, students’ schooling outcomes, and students’ degree completion independently predict cognitive outcomes? If so, how do life course social and biological factors mediate the effects of various dimensions of education? This study included a nationally representative sample of 12,530 Americans followed prospectively from high school through age ~60. We estimated associations between aspects of schooling and multiple dimensions of cognition, before and after adjustment for confounders. We then considered the mediating roles of midlife socioeconomic factors (e.g., income, financial precarity, debt, bankruptcy risk) and biological/health factors (e.g., cardiovascular disease, immunological function, inflammatory markers). We employ a variety of methodological approaches informed by recent advances in approaches to mediation analysis within causal frameworks. Education is more than just degree attainment. Understanding how and through what pathways education shapes cognitive functioning and ADRD risk requires longitudinal data with nuanced information about schools, schooling, and student performance.