



2021 Annual Meeting

Abstract Contributed Session (ACS) and Poster Session Abstracts

Health equity**Occupational inequity as a contributor to racial and ethnic disparities in COVID-19 death rates in California** Ellicott Matthay* Ellicott Matthay Kate Duchowny Alicia Riley Marilyn Thomas Yea-Hung Chen Kirsten Bibbins-Domingo Maria Glymour

Background: Blacks and Latinos are over-represented among COVID-19 deaths in the United States, but the reasons for these disparities are incompletely understood. Differences in individual- and area-level socioeconomic status, health status, and comorbidities inadequately explain racial/ethnic disparities in COVID-19 outcomes. People of color disproportionately hold jobs with high risk of COVID-19 exposure. We tested whether the racialized distribution of occupations helps explain racial/ethnic disparities in COVID-19 death rates in California.

Methods: We combined records of all COVID-19-confirmed deaths in 2020, population data from the 2019 American Community Survey, and published proxy measures of COVID exposure risk by occupation code (i.e. classification as an essential worker by CA state guidelines, ability to telework, low-wage status). We restricted to the working age population (18-65 years) and applied a mediation framework, focusing on direct occupational risk vs. downstream transmission (e.g. co-habiting with a high-risk worker). We used log-binomial regression with inverse odds ratio weighting, stratified by gender and adjusted for measured confounders (age, education, region, birth country).

Results: Racial disparities in COVID-19 death rates were striking: Age-adjusted rates were 8.4 and 4.0 times higher among Latino and Black men compared to White men, and 6.3 and 4.5 times higher among Latino and Black women compared to White women. Occupational characteristics mediated 5%, 7%, 6%, and 1% of the race/ethnicity-COVID-19 death relationship for Latino men, Black men, Latino women, and Black women, respectively.

Conclusions: Racial/ethnic inequalities in the distribution of jobs with high COVID-19 exposure risk may have contributed to disparities in COVID-19 mortality rates in California. This analysis demonstrates how the consequences of structural racism, in the form of unequal access to safe jobs, may manifest as disparities in COVID-19 outcomes.

Mortality**Non-COVID-19 Causes of Excess Mortality During the COVID-19 Pandemic: Evidence from Death Records in Philadelphia, PA** Annaka Scheeres* Annaka Scheeres Megan Todd

During the COVID-19 pandemic, there were many excess deaths attributable to mortality from COVID-19. However, excess deaths due to preexisting chronic diseases and external causes also increased during the pandemic, possibly due to interrupted healthcare or exacerbated systemic racial and socioeconomic injustice. We have limited evidence about the extent to which non-COVID-19 deaths contributed to excess mortality during the pandemic, so in this study, we compare cause-specific mortality in 2020 to past years to decompose the causes of death that accounted for non-COVID-19 excess mortality in 2020. We used death records from Pennsylvania's vital registration system to identify underlying causes of deaths to Philadelphia residents in 2015-2020. We examined the ten leading causes of death in Philadelphia—heart disease, cancer, drug overdose, cerebrovascular diseases, chronic lower respiratory diseases, septicemia, diabetes mellitus, kidney diseases, homicide, and influenza/pneumonia—in addition to motor vehicle accidents and COVID-19.

Preliminary results show a dramatic spike in deaths from external causes in 2020, specifically drug overdoses, motor vehicle accidents, and homicides, and deaths caused by diabetes (Fig. 1). We observed a moderate increase or slight decline in other underlying causes of death. Of particular concern are increased deaths caused by injury, which accounted for about 33% of non-COVID-19 excess deaths in 2020. Homicides in 2020 hit their highest level since 1990 and were 153% higher than the expected average based on the prior five years. Black Philadelphians accounted for about 85% of homicides. Preexisting racial/ethnic disparities in mortality were exacerbated by COVID-19 and further compounded by non-COVID-19 mortality. Future work includes examining multiple causes of death and decomposing the increase in mortality by race/ethnicity to identify which causes contributed most significantly to excess mortality among each racial/ethnic group.

Figure 1. Ratio of underlying causes of death by month in 2020 compared to 2015-2019 average



Race/Ethnicity**COVID-19 vaccine ambivalence: A challenge to achieving population health equity in the U.S.** Denae Bradley* Denae Bradley Marie-Claude Jigguép-Akhtar Tia Dickerson

The first person to receive the COVID-19 vaccine in the U.S. is Sandra Lindsey, a critical care nurse, and a Black woman. Since then, over 60 million people have received at least one dose of the vaccine. Of those, seven percent are Black, nine percent are Hispanic, and more than sixty-five percent are white. As these numbers show, Blacks and Hispanics lag behind whites in getting immunized against COVID-19. Delayed acceptance, vaccine efficacy denial, and vaccine refusal have been identified as important factors that explain vaccine hesitancy. The latter is a consequence of Blacks' historical mistreatment and exploitation due to abusive medical research practices. COVID-19 presents an existential threat to all Americans. Scientists argue that stemming the pandemic's spread requires that three-quarters of Americans, children and seniors included, become vaccinated. Since vaccine hesitancy persists among Blacks and other minorities, it is important to examine COVID-19 vaccine ambivalence beyond the historical experiences that have tainted their trust in health systems. This study examines how race interacts with willingness to be vaccinated and religious affiliation to influence immunization support for children and parents. We use multivariate logistic regression models to analyze the endorsement of vaccination for children and parents in the 2021 COVID-19 Vaccine Hesitancy Survey. Our independent variables include race/ethnicity, knowledge of vaccine efficacy and side effects, prior vaccination history, and religion. We will control for income, age, and gender. Our outcome variable is acceptance of a COVID-19 vaccine for children and/or parent(s). With children's participation in COVID-19 vaccine clinical trials having just begun, study findings may increase our understanding of how race and religion influence vaccine hesitancy for racial and ethnic minorities. Results may also be useful to public health efforts seeking to raise vaccination rates in the U.S.

Social/relational factors**Social Integration and Risk of Premature Mortality among African-Americans: The Jackson Heart Study** Harold Lee* Harold Lee Sakurako Okuzono Claudia Trudel-Fitzgerald Peter James Mario Sims Francine Grodstein Laura Kubzansky

Mounting evidence suggests that greater social integration is related to lower mortality rates. However, studies among African-Americans are limited. We examined whether higher social integration was associated with lower mortality in 5,306 African-Americans from the Jackson Heart Study, who provided data for the social integration metrics in 2000-2004 and were followed until 2018. Mortality information was obtained from national mortality. Social integration was measured by Berkman-Syme Social Network Index and categorized into four groups: high social isolation (n=242), moderate social isolation (n=1800; reference group), moderate social integration (n=1570), high social integration (n=1633). We estimated hazard ratios (HR) of mortality by social integration using Cox proportional hazard models. Covariates included baseline sociodemographics, depressive symptoms, health conditions, and health behaviors. Compared with moderate isolation, moderate integration was associated with an 11% lower mortality rate (HR=0.89, 95% confidence interval [CI]=0.77, 1.03), and high integration was associated with a 25% lower mortality rate (HR=0.75, 95%CI=0.64, 0.87), controlling for sociodemographics and depressive symptoms. Compared with moderate isolation, high isolation was related to a 34% higher mortality rate (HR=1.34, 95%CI=1.00, 1.79). Further adjustment of health conditions and health behaviors only slightly attenuated HRs (e.g., $HR_{\text{moderate integration}}=0.90$, 95%CI=0.78, 1.05; $HR_{\text{high integration}}=0.77$, 95%CI=0.66, 0.89). Higher levels of social integration were associated with lower mortality rates among African Americans. Social integration may be a psychosocial health asset with future work needed to identify biobehavioral processes underlying observed associations with all-cause mortality among African-Americans.

Methodological approaches to studying public health**Predictors of romantic partner nomination reciprocity in adolescent social networks** jimi

adams* Kate Vinita Fitch Molly Copeland jimi adams

Network data uniquely allow each relationship to be multiply reported. Decision rules for how to include or exclude ties based on whether the nominations are reciprocated is an important methods consideration in social network analyses. Previous research demonstrates that some ties may be omitted in respondent reports due to individual effects, like forgetting, misunderstanding, or intentionally misreporting ties, or design effects, like limitations on how many ties can be reported. These missing ties, while difficult to validate, are important for accurately describing social networks and the effects of relationships on health and behavior. In this work, we describe overall levels of romantic partner nomination reciprocity in adolescent social networks and evaluate predictors of that reciprocation. We use data from the longitudinal PROSPER study of two successive adolescent cohorts in grades 8 through 12 from rural communities in Iowa and Pennsylvania. In total, 4,810 unique nomination recipients within 5,193 unique dyads are analyzed. We use a multi-level generalized estimating equation, clustered at the school level, to identify individual and dyadic predictors of nomination reciprocity. The base within-wave nomination reciprocity rate was 43.7% when considering all nomination recipients and 51.2% when considering only recipients that were present at wave with sufficiently complete data and who did not report a relationship with another individual. Preliminary results suggest that, when controlling for the number of romantic partner nominations sent and received, same-sex nominations have significantly lower odds of reciprocation. Additionally, nominations occurring within dyads whose members differ on substance use and school adjustment and bonding score have significantly lower odds of reciprocation. Further analyses will examine whether these effects differ across waves or between sub-populations.

Health equity**Neighborhood Social Cohesion and Type 2 Diabetes Mellitus by Age, Sex/Gender, and Race/Ethnicity in the United States** Patrice Williams* Patrice Williams Kionna Henderson Dana Alhasan Symielle Gaston Braxton Jackson Ichiro Kawachi Chandra Jackson

One in ten Americans have diabetes, and roughly 95% of them have type 2 diabetes mellitus (T2DM). In 2017, the total cost of diabetes in the U.S. was \$237 billion with \$90 billion in reduced productivity. Burgeoning research suggests that neighborhood social cohesion (nSC) positively influences the prevention of T2DM by reinforcing healthy behaviors, reducing stress, and increasing perceived safety. Prior research has shown that low nSC is associated with prevalence of T2DM, but few studies have investigated the nSC-T2DM relationship among a large, racially/ethnicity diverse, and nationally representative sample of the U.S. population. We used National Health Interview Survey data (2013-2018) to examine the overall, age-, sex/gender-, and racial/ethnic specific associations between nSC and T2DM. Perceived nSC is based on a 4-item scale categorized as low, medium, and high. T2DM was determined by participants being told they had diabetes by a health professional. We used Poisson regression with robust variance to estimate prevalence ratios (PRs) and 95% confidence intervals (CI) while adjusting for sociodemographics and other confounders. Among 170,432 participants, the mean age was 47.4 ± 0.1 years, 52% were women, and 68.8% self-identified as Non-Hispanic White (NHW). Among NHW, a lower percent lived in low (27.7%) vs. high (39.9%) nSC. A higher percent of NH-Black (NHB) and Hispanic/Latinx participants reported low (41.5%; 44.0%) vs. high nSC (24.3%; 23.6%), respectively. Low vs. high nSC was associated with a 21% higher prevalence of T2DM (PR=1.21 [95% CI: 1.15-1.26]). Among NHB men ≥ 50 years old, low vs. high nSC was associated with a 27% higher prevalence of T2DM (PR=1.27 [95% CI: 1.05-1.53]). In conclusion, future studies should use an intersectional perspective when investigating the influence of neighborhood environment on health to disentangle the complex ways multiple identities and neighborhood social conditions intersect and produce health disparities.

Life-course/developmental**Examining the role of social cohesion in understanding links between early adversity and adult social status** Mark C. Pachucki* Mark C. Pachucki Youngjoon Bae Lindsay Till Hoyt

Childhood stress and economic insecurity can disrupt adults' relationships and long-term economic prospects. Early adversity is linked to relationships in ways that vary by race and family environments, yet how it may be associated with adult social cohesion and might track to disparities in later social status has not yet been well-elaborated. This study asks: (Q1) What is the relationship between child adversity and later-life social status? (Q2) How does the link between network cohesion and social status vary by race? (Q3) Does adult network cohesion *moderate* or *mediate* the relationship between child adversity and adult social status? We use longitudinal data from 1992-2016 (n=18,081) and conduct linear regression analyses using the Health & Retirement Study to estimate relationships between childhood adversity (retrospective parental abuse, problematic parent drinking/drugs, repeating a grade, trouble with police) and three social status measures (multi-wave mean of transformed income, wealth; 2010 subjective social status), to test the moderating role of adult network cohesion (multi-wave mean of contact with neighbors, relatives, friends, children, parents, volunteer work, spouse). We also perform causal mediation analyses to assess social cohesion as a mediator. As genes may lead to differential sensitivity to poorer rearing environments, secondary analysis accounts for a polygenic score for educational attainment (measured for European-ancestry adults only). Child adversity is linked to adult objective *and* subjective social status in main models and polygenic sensitivity model. Greater adult social cohesion is related to greater social status (all 3 indicators). However, an already-large wealth disparity by race among low-social-cohesion individuals (disadvantaging Black adults) widens as cohesion increases. Analyses suggest that adult social cohesion plays a mediating and not moderating role between childhood stressors and adult social status.

Social/relational factors**Intersecting Identities in Social Context: Paradoxical Implications for Life Course Obesity**

Jessica Polos* Jessica Polos Thomas McDade Stephanie Koning

Obesity is an important public health concern due to its positive association with a variety of chronic conditions, including diabetes, hypertension, high cholesterol and heart disease, as well as all-cause mortality. An abundance of studies has examined how individual-level disadvantage, such as low socioeconomic status or exposure to racism, are associated with obesity. Similarly, contextual-level disadvantage in childhood, such as that experienced at peer, school, and neighborhood levels, is associated with obesity. However, less is known about how these levels of disadvantage interact with each other. That is, are the effects of social context on health heterogeneous by intersecting individual identities? In this paper, we bring together literatures on social contextual effects and individual health effects to place individuals in context under an expanded version of intersectionality as an analytical approach to health disparities research.

Using data from the National Longitudinal Study of Adolescent to Adult Health, we estimate the total effect of adolescent peer socioeconomic context on life course obesity for race-by-gender-by-socioeconomic-status groups. We exploit quasi-experimental variation in adolescent peer SES context to address various biases in the relationship among individual identities, social context, and health. Moreover, we take a life course approach given evidence that adolescence is a sensitive period in the development of obesity trajectories across adulthood. Our preliminary findings suggest that increasing exposure to peer SES adversity in adolescence predicts a lower risk of obesity for low-income Black men and a higher risk of obesity for high-income Black women through early-mid adulthood. These diverging trajectories suggest that the pathways through which peer context influences health may differ or produce differential effects based on intersecting race, gender and SES identities.

Mental health/function**Proximity to Advantage: Examining the Mental Health Effects of Closeness to Whites**

Christina Bijou* Christina Bijou

Racial/ethnic disparities are widespread and persistent in the United States. Generally, racial/ethnic minorities experience worse health outcomes when compared to non-Hispanic Whites. Compared to Whites, African Americans are at higher risk of obesity, diabetes and disability. Despite these persistent physical health disparities, African Americans experience fewer mental disorders than non-Hispanic Whites. Some scholars argue that this mental health advantage is tied to African Americans' strong ethnoracial identity. However, recent findings indicate that African Americans' strong ethnoracial identification is a "double-edged sword" which can be health deleterious because of Blacks' stigmatized status in the U.S. (Monk 2020). If, ethnoracial identification with a disadvantaged group can be health deleterious, it follows that identification with an advantaged group may be health protective. To my knowledge, no study has investigated the link between identification with an advantaged social group and mental health. This study fills that gap by examining the link between ethnoracial identification with non-Hispanic Whites and mental health outcomes among various racial/ethnic groups. Using the National Survey of American Life (NSAL), I examine the link between closeness to Whites and mental health among African Americans, Caribbean Blacks, Hispanics, and non-Hispanic Whites. Findings show that closeness to Whites is health protective for some racial/ethnic groups, but not all.

Race/Ethnicity**Exposure to Personal and Vicarious Racism-Related Traumas and Poor Sleep in Black Women** Izraelle McKinnon* Izraelle McKinnon Dayna Johnson Raphiel Murden Christy Erving Miriam Van Dyke Viola Vaccarino Bianca Booker Renee Moore Tené Lewis

Much of the research linking racism-related stressors to poor health has focused on day-to-day forms of racism that directly impact individuals under study. Events like the killing of George Floyd and subsequent reports of impacts on mental health among Blacks highlight a need to examine whether vicariously experiencing racism-related stressors, particularly more extreme, traumatic racism-related events that happen to others of the same race (i.e., hearing about or witnessing the killing of George Floyd), are as impactful to health as events experienced by the individual. We examined associations between exposure to personal and vicarious racism-related traumas (RRTs) and poor sleep, an emerging risk factor for chronic disease that is highly prevalent among Blacks compared to other races, in a cohort of 422 Black women. Composite scores of RRTs were created using the Race-Related Events Scale; 15 items assess personal exposures (e.g. "someone beat or hurt me because of my race or ethnicity") and 7 items assess vicarious exposures (e.g. "saw someone who is the same race or ethnicity as me killed because of their race or ethnicity"). Sleep outcomes were measured with the Pittsburgh Sleep Quality Index, and included the global score and subdimensions (sleep duration, sleep disturbances, subjective sleep quality). Linear regression analyses examined associations between personal and vicarious RRTs and poor sleep outcomes. In unadjusted analyses, personal ($\beta=.23$, $SE=.01$) but not vicarious ($\beta=.02$, $SE=.02$) RRTs were associated with global sleep score. Similarly, personal but not vicarious RRTs were associated with worse subjective sleep quality (personal $\beta=0.05$, $SE=.01$; vicarious $\beta=0.01$, $SE=.02$), shorter sleep duration (personal $\beta=0.05$, $SE=.01$; vicarious $\beta=0.01$, $SE=.03$), and more sleep disturbances (personal $\beta=0.02$, $SE=.01$; vicarious $\beta=0.01$, $SE=.02$). Findings were comparable after adjusting for sociodemographics, body mass index, smoking status, sleep medication use, depression symptom severity, and rumination. Thus, personal, but not vicarious, RRTs were associated with poor sleep among Black women. Future studies are needed to explore personal and vicarious RRTs and poor health, given documented increases in racism-related acts of violence and spread of information and videos depicting these acts.

Mental health/function

The ACT Project: Integrating Theatre into Anti-Racist Clinical Training Noah Triplett* Noah Triplett Jasmine Blanks Jones Julie Nguyen Jules Cesar Mugisha Shannon Dorsey

Background: Studies have documented the negative effects of racism on Black mental health. Yet, there is little literature on how to incorporate anti-racism into mental health treatment. Studies in nursing and physician education have shown the potential of using theatre-based methods to improve multicultural awareness and empathy, but these methods have not yet been applied to mental health.

Methods: The present study integrates theatre-based methods into a training initiative for community-based mental health clinicians in Washington State. We will administer a survey to assess: 1) clinicians' multicultural knowledge and awareness; 2) clinicians' intentions to ask about race; 3) clinicians' perceived barriers and facilitators to discussing race/racism; and 4) steps organizations have taken to serve diverse clients. Then, we will host a theatre-based workshop to train clinicians to address race and anti-Black racism. Professional actors will perform a series of scenes developed from the survey. Training participants will observe as "spec-actors"—audience members who reshape scenes by making suggestions about how a performance should be carried out. Then, participants will be split into groups to work through a sketch of treating a Black client. We will evaluate the acceptability of the training as well as its impact on clinicians' multicultural knowledge and awareness and intentions to ask about race.

Results: We aim to gather baseline information from 100 clinicians starting March 2021 to mid-April. We will train 25 clinicians in August and have all data analyzed by October. Working within an existing initiative, we are confident in our ability to recruit clinicians and adhere to our timeline.

Implications: By incorporating drama into training, we hope to prompt reflection and equip clinicians with skills to sensitively and confidently discuss race. Increasing clinicians' confidence and skills to discuss race may improve Black clients' experiences in therapy.

Health care/services**Navigating the COVID-19 Pandemic as an Immigrant Living in the US** Cesar Vargas Nunez*

Cesar Vargas Nunez

More than a year after the first reported case of COVID-19 in the US, it has become clear that minorities are suffering a disproportionate share of cases and deaths. Immigrants are especially vulnerable because despite working primarily in industries with high COVID-19 risk, they remain barred from most government healthcare programs. Yet, we know little about how undocumented immigrants have navigated the pandemic, especially with rising anti-immigrant rhetoric and immigration enforcement. How have healthcare restrictions shaped how immigrants coped with the COVID-19 pandemic? To answer this question, I use social media advertisements to collect survey data from a large sample of undocumented immigrants across the US. I then merge the survey data with an original dataset outlining availability of county-level healthcare programs for undocumented immigrants, sanctuary-city status and local partisan make-up. The results suggest that immigrants remained resistant to seek medical care, even when it was needed, particularly in Republican states. Despite lower rates of medical use, immigrants who lived in democratic-leaning states reported higher willingness to get vaccinated. The results of this study contribute to scholarship on attitudes towards immigrants and healthcare inequities.

Environmental factors**Ambient Air Pollution, Neighborhood Contexts, and Racial Disparities in Youth Outcomes**

Victoria Sass* Victoria Sass Bongki Woo Samantha Teixeira Smitha Rao Kyle Crowder

Although air pollution in the U.S. has declined, racial/ethnic disparities in exposure and its detrimental impact on health remain persistent over time. Children and youth are uniquely vulnerable to air pollution, due to their immature and developing neurological and physical systems. A nascent body of research has begun to document detrimental effects of air pollution exposure on health/academic performance among youth. What remains unknown is to what extent racial residential segregation and neighborhood contexts create differential impacts of air toxins on youth educational/behavioral outcomes, especially among racial/ethnic minorities. Based on the racially patterned geographical distribution of air pollution in the U.S., youth of color are likely to be at particular risk for exposure to pollution and its detrimental effects on their development. Given that cognitive impairment in early age has enduring effects on cognitive impairment across the life course, especially among racial/ethnic minorities, there is a critical need to systematically investigate the detrimental impact of air pollution and environmental conditions on educational/behavioral outcomes among youth of color.

Leveraging the PSID and its Child Development Supplement, joined with emissions of NO₂, PM₁₀, and PM_{2.5} at the block-group level, this paper seeks to elucidate the ways in which ambient air toxins affect racial/ethnic inequalities in youth educational/behavioral outcomes as well as how residential segregation and neighborhood stressors interact with air pollution to create conditions that exacerbate racial/ethnic disparities. Results from related investigations using the same dataset suggest there is a negative association between air pollution levels and youth outcomes, differential exposure to pollution contributes to racial/ethnic disparities in youth outcomes, neighborhood stressors exacerbate the effects of air pollution on youth outcomes, and air pollution will interact with neighborhood disadvantage and residential segregation, contributing to racial and ethnic differences in youth outcomes.

Health equity**Persistent disparities in exposure to upstream oil and gas production facilities in****California** David Gonzalez* David Gonzalez Claire Morton Marshall Burke

Background. Recent studies from California have found that residing in proximity to oil and gas wells is associated with exposure to ambient air pollutants and higher risk of adverse health outcomes. Prior work has found that racially and socioeconomically marginalized communities are disproportionately exposed to environmental hazards, but the processes that produce exposure disparities remain poorly understood.

Objectives. Our objectives were to determine whether racially and socioeconomically marginalized populations are disproportionately exposed to oil and gas wells in California and whether disparities persist through time. We also aimed to examine whether the demographic and socioeconomic composition of communities shifts following changes in the intensity of upstream oil and gas production, and to investigate whether wells were sited in marginalized communities or whether marginalized populations aggregated around wells post-siting.

Methods. We obtained demographic and socioeconomic data from the American Community Survey and data on oil and gas production from Enverus and the California Geologic Energy Management Division from 2005 to 2019. For each census block group, we assessed exposure to oil gas wells in preproduction and production in each year.

Results. The proportion of Black residents living near areas where new wells were drilled during the study period was approximately twice the proportion of Black residents in California. The proportion of Hispanic residents near wells was between 10 and 25% higher than the proportion statewide. Residents with income below the poverty level and those with less than high school-level educational attainment were also disproportionately exposed. Disparities were persistent from 2005 to 2019.

Conclusion. We observed that, in California, racially and socioeconomically marginalized populations had disproportionately high exposure to upstream oil and gas production facilities, and that the disparities were persistent.

Racial disparities

Racial disparities in law enforcement/court-ordered psychiatric inpatient admissions after the 2008 recession: a test of the reduced tolerance hypothesis Parvati Singh* Parvati Singh
Ralph Catalano Tim-Allen Bruckner

Background: According to the 'reduced tolerance' hypothesis, societies under duress may increase the reporting of disordered persons from minority sub-groups to law enforcement for involuntary psychiatric commitment. Mentally ill African American males reportedly are perceived as more threatening relative to females and other race/ethnicities. We examine whether law enforcement/court order-requested involuntary psychiatric hospitalizations increased among African American males shortly after ambient economic decline- a widely characterized population stressor.

Methods: We identified psychiatric inpatient admissions requested by law enforcement/court orders from 2006 to 2011 across four US states (Arizona, California, New York, North Carolina). Our analytic sample comprises 13.1 million psychiatric inpatient admissions across 95 counties over 72 months. We operationalized exposure to economic downturns as percent change in monthly employment in a Metropolitan Statistical Area (MSA). We analyzed within-county variations in psychiatric inpatient admissions requested by law enforcement/court orders following regional employment decline over a time period that includes the Great Recession of 2008. County and year fixed effects methods with cluster-robust standard errors controlled for key rival confounders.

Findings: Declines in monthly employment precede by one month a 3% increase in psychiatric hospitalizations requested by law enforcement/court order among African American males ($p < 0.05$) but not among other race/sex groups. Estimates amount to an excess of 995 involuntary admissions among African American males statistically attributable to reduced tolerance, following employment decline.

Conclusions: Economic downturns may reduce societal tolerance of behaviorally disordered African American males. Our findings underscore the unique vulnerability of racial/ethnic minorities to prejudice during economic contractions.

Race/Ethnicity**Racial and Ethnic Disparities in Health-Related Socioeconomic Risk Factors during the Early Phase of the COVID-19 Pandemic: A National Survey of U.S. Women** Milkie Vu* Milkie Vu Jennifer Makelarski Victoria Winslow Monica Christmas Sadia Haider Nita Lee El Pinkerton Kristen Wroblewski Stacy Lindau

In the early COVID-19 pandemic phase, nearly half of U.S. women experienced new or worsening health-related socioeconomic risks (HRSRs) – food and housing insecurity, transportation and utilities difficulties and interpersonal violence (IPV). Coronavirus-related morbidity and mortality rates are disproportionately high among racial/ethnic minority populations, yet little is known about racial/ethnic differences in pandemic-related HRSR changes. We examined these changes by race/ethnicity among U.S. women. We conducted a cross-sectional survey (04/2020) of 3200 women. Pre-pandemic and early pandemic HRSRs were described by race/ethnicity. Logistic regression was used to model the odds of incident and worsening HRSRs by race/ethnicity, adjusting for sociodemographic characteristics and self-rated health. While 62% of White women reported no pre-pandemic HRSRs, the majority of Black, Hispanic and East/Southeast (E/SE) Asian women had ≥ 1 HRSR (51-56%, $p < 0.001$). In the early pandemic phase, 69% of Black, E/SE Asian and Hispanic women and 56% of White women had ≥ 1 HRSR ($p < 0.001$). Overall prevalence by HRSR type was: food insecurity (53%), transportation difficulties (23%), IPV (19%), housing insecurity (15%), and utilities difficulties (11%). Compared to White women, E/SE Asian women had higher odds of incident or worsening HRSRs (aOR 1.6, 95% CI 1.2, 2.2). For most HRSRs, the odds of incident or worsening conditions were similar across groups, except Black, E/SE Asian and Hispanic women had 2-3.6 times the odds of incident transportation difficulties compared to White women. E/SE Asian women also had higher odds of worsening transportation difficulties compared to White women (aOR 2.5, 95% CI 1.1, 5.6). Although pandemic-related incident and worsening HRSRs odds were similar across racial/ethnic groups, disparities in HRSR prevalence persisted. An equitable COVID-19 response requires attention to disparities in modifiable HRSRs, especially transportation.

Race/Ethnicity**Maternal mortality in news media: A content analysis** Hawi Teizazu* Hawi Teizazu

Background and question: In the United States, pregnancy-related mortality has nearly tripled since the 1980s. This issue is particularly pronounced among non-Hispanic Black women, whose maternal mortality rates are 3-4 times those of non-Hispanic White women. Although maternal mortality, and racial disparities, in the United States, has received increased media and political attention in recent years, little is known about the content of media coverage. Mass media is a significant source of information for the majority of Americans. Media shapes dominant cultural understandings of racialized groups and influences public willingness to address racial inequities. This study examines the content of news media coverage of maternal mortality, focusing on the extent to which racial disparities are being communicated to the general public. **Data and Methods:** Using online news stories published by prominent national and regional media outlets within a 12-month period that featured maternal mortality as a headline, this study applies framing theory to characterize media coverage of maternal mortality. Specifically, this study assesses the use of individual narratives (human interest frame), whether particular social groups or racial disparities are highlighted (social group frame), and whether the causes of maternal mortality and disparities are included (causal frame). These frames reflect both the nature of the issue, and research that shows that emphasizing structural causes promotes public support for policy intervention. **Results:** A preliminary scan of articles showed that the majority of news stories attribute maternal mortality to health system failures (i.e., shortage of OB-GYNs, lack of care during postpartum). The majority of news stories focus on the general population of birthing women and note, but do not describe, Black-White differences in maternal deaths. When described, racial disparities are attributed to differences in individual behavioral risk factors (i.e., obesity, diabetes), institutional factors (i.e., racism in clinical settings), and broader social determinants (i.e., chronic stress, neighborhood characteristics). The majority of articles do not use a human-interest frame.

Health equity**Multidimensional Structural Racism and Birth Inequity in Minnesota** Tongtan Chantarat*

Tongtan Chantarat David Van Riper Rachel Hardeman

Scholars theorize structural racism as a multidimensional system of inequities (e.g., in housing, education, labor markets), with each dimension reinforces one another to limit social and economic opportunities and prevent access to material resources essential for the health and well-being of communities of color. Nevertheless, a paucity of empirical research has operationalized and measured structural racism as a multidimensional risk. In previous work, many scholars have operationalized structural racism as residential segregation. This singular representation of structural racism is useful in that where one lives has implications across sectors. However, it does not offer scholars and policymakers the full picture of how structural racism operates across multiple sectors to determine Blacks' health jointly.

We will use a latent variable mixture model to group White, US-born Black, and foreign-born Black women who gave birth in Minnesota between 2012-2019 into multidimensional exposure classes (i.e., the multidimensional measure of structural racism; MMSR) based on their scoring on the index of dissimilarity, measures of Black-White education inequity, employment inequity, wealth inequity, incarceration inequity, and the index of concentration at the extremes (for income inequity). Each unidimensional structural racism index is measured at the Public Use Microdata Unit where the women live. Data for this analysis comes from the restricted birth certificates with geocoding from the Minnesota Department of Health, integrating with data from the American Community Survey and the Vera Institute of Justice. We will perform a latent class analysis with distal outcomes to examine the association between the MMSR and the risk of preterm and low-birthweight births. This analysis improves our knowledge of the deleterious effect of structural racism and the underlying mechanism linking racial inequities in various sectors to birth outcomes. The study results will inform the design of future effective anti-racist interventions.

Policy**Assessing the Content and Effectiveness of State Laws Addressing Adolescent Intimate Partner Violence in Schools** Avanti Adhia* Avanti Adhia

Background: One in eight U.S. high school students have experienced physical and/or sexual intimate partner violence (IPV) in the past year. Given the widespread prevalence and adverse consequences of adolescent IPV, states have increasingly been enacting and implementing laws to address IPV in schools. These state laws have the potential to alter the social contexts in which IPV occurs by encouraging or requiring school districts to adopt prevention education curricula and policies for addressing IPV. Despite the expansion of these laws over the past decade, there is a paucity of research examining the content and effectiveness of these state laws.

Methods: A team of public health and legal researchers used systematic policy surveillance methods to develop a comprehensive database of state laws regarding school-based prevention of and response to IPV. Using data from the legal database Westlaw and state legislature websites, we conducted a longitudinal content analysis of IPV laws across all 50 states from 2007 to 2020. We combined this legal data with state-level IPV data from the Youth Risk Behavior Surveillance System to examine the relationship between the comprehensiveness of state laws and state-level prevalence of adolescent IPV using a difference-in-differences analytic approach.

Results/Implications: In 2019, state-level prevalence ranged from 5% to 16% for both physical and sexual IPV. Results showed considerable variation in the comprehensiveness of state laws around school-based IPV prevention and response, with respect to terminology used, inclusion and content of prevention education, development of school district policies, and funding provisions. Specific recommendations for more comprehensive and protective laws for addressing adolescent IPV in schools will be discussed. Policy interventions in the school context can address the outer layers of social ecology to decrease IPV and improve population-level adolescent health.

Policy**Responding to the opioid crisis: did policies to curb opioid prescribing exacerbate racial disparities?** Tarlise Townsend* Tarlise Townsend Rebecca Haffajee

Objective: We examined whether effects of two leading opioid prescribing policies, prescription drug management program (PDMP) prescriber use mandates and pain management clinic laws, differentially impacted prescription opioid dispensing in Black compared to white patients. Despite lower rates of nonmedical prescription opioid use and prescription opioid overdose, research suggests prescribers are disproportionately suspicious of Black patients as “drug-seeking”. Policies to curb excess opioid prescribing, and particularly those that primarily target prescriber behavior, may therefore reduce opioid prescribing to Black patients more than white patients.

Design: We used event study analysis to estimate the effect of PDMP prescriber check mandate and pain management clinic law enactment on high-risk opioid receipt in Black and white patients. This method allowed us to estimate time-varying policy effects and to visualize pre-enactment trends to assess the credibility that our estimates were causal. Outcomes included five quarter-level indicators of high-risk opioid dispensing targeted by these policies: (1) receipt of a high-dose prescription (≥ 90 morphine milligram equivalents, MME); (2) receipt of opioid prescriptions from >3 prescribers; (3) receipt of opioid fills from >3 pharmacies; (4) receipt of ≥ 7 days of concurrent opioid prescriptions; (5) receipt of ≥ 1 day of concurrent opioid and benzodiazepine prescriptions.

Population: Using pharmacy claims data from all 50 states, our sample comprised commercially insured Black and white adults under age 65 who received at least one opioid fill between 2007 and 2018.

Findings: We find evidence of racially disparate effects of PDMP prescriber check mandates on high-risk opioid dispensing in patients with any opioid receipt. Despite lower baseline probability of high-risk receipt, Black patients appeared to experience larger mandate-related declines than white patients in every outcome except receipt from >3 pharmacies. For example, the percentage receiving concurrent opioids decreased by 1.3 percentage points from one year pre-enactment (95% CI: -1.656,-1.008 ppt.), or 14.4%, in Black patients, compared to a decrease of 0.9 percentage points (95% CI: -0.987,-0.718 ppt.), or 9.6%, in white patients. In contrast, there was no evidence of racially disparate effects of pain clinic laws.

Conclusions: A leading policy to curb excess opioid prescribing may have disparately reduced high-risk prescribing in Black patients. While this may have reduced risk of prescription opioid-related harms in Black people, it may have exacerbated mistrust in the healthcare system, increased risk of insufficient pain management, and increased risk of illicit opioid use for pain management.

Implications for Policy or Practice: Clinicians should be educated about the racist origins of the drug war, the narratives surrounding it, and the ways these may shape their own assumptions about Black patients. To preclude unintended consequences of opioid sparing, PDMP use should not be used in isolation, but combined with provision of effective non-opioid alternatives for pain management, as well as provision of medication for opioid use disorder when appropriate.

Environmental factors**Impact of Federal Housing Assistance on Housing and Environmental Quality among U.S. Households** MyDzung Chu* MyDzung Chu Gary Adamkiewicz Andrew Fenelon Ami Zota

Hazardous housing and indoor environmental conditions are risk factors of adverse health and disproportionately more prevalent among low-income households. Federal assistance programs provide affordable housing for very low-income residents and have been linked with positive health benefits. Their impact on health may be through improvements in housing and environmental quality (HEQ), though this research has been less explored. We investigated the impact of federal housing assistance (e.g. public housing, private income-restricted housing, Section 8 vouchers) on HEQ among U.S. renters in the 2011-2019 American Housing Survey. We identified 46 questions pertaining to eight HEQ domains associated with poor health effects: indoor combustion, mold, pests, lead, thermal discomfort, overcrowding, indoor infrastructure, and water sanitation issues. We created HEQ domain scores from the sum of responses, with a higher score indicating worse quality. We compared HEQ scores by housing assistance status, program type, and income-level using multivariable negative binomial regressions. Twenty-two percent of renter households received housing assistance. Among the very low-income, unassisted households below 34% of federal-poverty level (FPL) had higher risk scores for indoor combustion sources (adjusted risk ratio: 1.2), pests (1.2), lead (1.3), severe overcrowding (4.5), indoor infrastructure (1.3), and water sanitation (1.4) issues than assisted households ($p < 0.02$). However, assisted households had a higher risk for mold (1.1). HEQ scores were similar by program type for most domains ($p > 0.10$). By income-level, higher-income unassisted households (151+% FPL) had lower HEQ scores than lower-income unassisted and assisted households for most domains ($p < 0.05$). While socioeconomic disparities persisted in residential environmental conditions, federal housing assistance may provide HEQ improvements for very low-income residents that could contribute to positive health outcomes.

Policy**Active Labor Market Policies and US Life Expectancy** Megan Reynolds* Megan Reynolds

Although still increasing overall, gains to life expectancy in the US have been smaller than those in peer nations over the past 50 years. A small set of studies have investigated the relationship between health and active labor market policies (ALMPs), which help workers find and maintain employment as well as increase earnings capacity. Research on *labor market* outcomes suggests that the direction and strength of ALMP effects is contingent upon the type of ALMP under study, with ALMPs that primarily support businesses, (e.g. - subsidized employment) showing poorer labor market outcomes and ALMPs that primarily support workers (e.g. - job training programs) showing better labor market outcomes for the working-age population. Thus, we ask: to what extent might the increasing policy investment in business-supportive ALMPs, at the expense of worker-supportive ALMPs, contribute to US life expectancy underperformance in recent decades? Using the Comparative Welfare States dataset, we find that, with only two exceptions (job rotation and employment incentives), business-supportive ALMPs work against life expectancy gains and worker-supportive ALMPs work in favor of life expectancy gains. More broadly, our findings point to the need for additional research on the extent to which the substantial weakening of policies related to labor market protection and reintegration in the US have contributed to disadvantages in life expectancy.

Policy**An Analysis of the Relationship between State Earned Income Tax Credit Generosity, Risk and Health among Single Mothers with Low Education** Kimberly Narain* Kimberly Narain Haiyong Xu

Research Objective: To examine the impact state-level Earned Income Tax Credit generosity on risk behaviors and health outcomes among single mothers with low education.

Study Design: Using 2002-2018 data from the Behavioral Risk Factor Surveillance System, an indicator variable for binge drinking, a composite indicator variable for HIV risk behavior, assessing the presence of any of the following behaviors in the last year: intravenous drug use, treatment for a sexually transmitted disease, receipt of money in exchange for sex, sex without a condom, self-reported poor physical health days and poor mental health days in the last month were regressed on categorical variables for State Earned Income Tax Credit. Logistic Regression (LR) models and Two-part models (LR/General Linear Model) were estimated for dichotomous and count outcomes, respectively. All regressions controlled for 1-year lagged unemployment, minimum wage, welfare generosity (cash transfers and food stamp benefits), individual-level factors (age, race/ethnicity, number of minor children, health insurance coverage, usual source of care), and included fixed effects for state and year. Standard errors were robust and clustered at the state-level. All monetary values were adjusted for inflation.

Population Studied: Single mothers of minor children, age 18-55 with a high school diploma or less education.

Results: Single mothers residing in states with the most generous S-EITC had a two percentage point decline in the probability of reporting binge drinking and HIV Risk Behavior, relative to single mothers residing in states with no S-EITC. They were less likely to report any poor physical or poor mental health days; however, there was no differences observed among individuals who reported poor physical health days or poor mental health days.

Conclusions: High S-EITC generosity is negatively associated with risk behaviors and reporting poor mental or physical health days among single mothers of minor children.

Social Epidemiology**Knowledge, Power, + (Mis)Representation in Health Equity Discourse: Towards Antiracist + Decolonizing Praxis for a People's Social Epi** Ryan Petteway* Ryan Petteway

So much of public health is built upon the bodies of the oppressed. Literally. The path to health equity is lined with our samples and specimens—Black, Brown, Indigenous, queer, poor, immigrant, and so on. Bodies broken open in the name of science. Entire lives, communities, and histories reduced to “n’s,” distilled into odds ratios and relative risks. Data. Stories are being written, tales are being told. And we... are being regressed. Pun. In this epic of health equity, it is time we interrogate who the protagonists and narrators are, and to (re)center the voice and agency of those most burdened by the social inequity manifest as population health inequities.

In this spirit, I draw from social epidemiology, critical theory, critical race theory, and decolonizing theory/methods literature to: a) examine power relations within standard social epi knowledge production processes, b) interrogate pervading epistemologies in relation to settler-colonialism and white supremacy within health equity discourse/knowledge production, and c) discuss/reflect on applications of participatory and decolonized approaches within my own work that center considerations for/of epistemic justice, data justice, and narrative power, i.e. research as resistance and counternarrative. I then introduce an updated framework for a *People's Social Epi*—a social epi of, by, and with the people, not simply about them/us. In doing so, I articulate a vision of social epi for/as resistance and counternarrative, challenging public health's history of violence against our bodies, its (re)colonization of our lives, and its (a)political silence on matters of social injustice.

Place/Communities

Mass Incarceration and the Community-Wide Consequences of COVID-19 Katherine LeMasters* Katherine LeMasters Lauren Brinkley-Rubinstein Kathryn Nowotny Shabbar Ranapurwala

COVID-19 and mass incarceration are closely intertwined. On average, state prisons have COVID-19 infection rates three times that of the general population, with many outbreaks in prisons. COVID-19 highlights the relationship between incarceration and health, but little work explores whether COVID-19 is amplifying incarceration's community-wide health consequences. Early work found a connection between jail and community COVID-19 infections in Chicago. Yet, this relationship is unknown on a larger scale and no work has explored the relationship between COVID-19 in prisons, thought to be more separate from the general population, and communities. With data from NC's Department of Health and Human Services, this analysis captures COVID-19 tests in NC from January to November 2020. Weekly COVID-19 cases and test positivity were calculated by county and assessed separately for counties with and without prisons and for prison and community populations within counties. We compared weekly COVID-19 test positivity between counties with and without prisons with time series data. From January to November 2020, NC had 377,707 COVID-19 cases with 183,868 cases in counties with prisons. In these counties, 6,600 cases were related to prisons. Prisons' test positivity was consistently higher than communities'. Community test positivity in counties with prisons outpaced that in other counties early on when prisons had little testing and many had COVID-19 outbreaks. A June lawsuit forced prisons to increase testing and community positivity in surrounding counties fell below that of other counties, as cases were detected before outbreaks occurred. Mass testing ended in September and community test positivity in counties with prisons surpassed that of other counties again. COVID-19 is devastating prisons and surrounding communities. As a public health community, we must recognize that prisons are not separate from communities and that conditions in these settings impact community health.

Environmental factors

Building community resilience through a participatory approach to address environmental health risks in Brooklyn's Chinatown Graham Dove* Yi-Ling Tan Charlie Mydlarz Steve Mei
Judith Zelikoff Simona Kwon

Background:

Asian Americans are the fastest growing racial group in the US, and are mostly foreign-born, with many living in urban ethnic enclaves. Asian American ethnic enclaves are exposed to higher levels of pollutants which are linked to hypertension, neurological disease, and developmental risks in children. Chinese Americans are the largest Asian ethnic group in NYC and report less education and lower English proficiency, income and health literacy compared to all New Yorkers. In Sunset Park, Brooklyn - an Asian American enclave bisected by the Brooklyn Queens Expressway, air pollution is higher than average for NYC.

Objective:

Harnessing a multidisciplinary team, we will pilot and evaluate a community-based, participatory citizen science program in Sunset Park to examine and monitor air and noise pollution, advance change in policy and practice, and address neighborhood level environmental health and justice. We will present on the framework and process guiding our work.

Methods:

The project will apply community-based participatory research principles and a collective impact approach to facilitate community-led monitoring of environmental pollutants and their health impacts. This includes the following: 1) training community members as citizen scientists on sensor deployment and management, and data collection and analysis tools; 2) participatory design workshops to inform the development of user-friendly sensors and monitoring platforms; and 3) co-developing culturally tailored materials to build community-level environmental health literacy and to advocate for policy change.

Results:

Project findings related to challenges, barriers and facilitators and lessons learned will be shared.

Conclusion:

There is a need to develop environmental research processes that align with community priorities. This will amplify local knowledge during the planning and execution of scientific monitoring studies and support actionable outcomes for reducing environmental health disparities in high-risk, underserved communities.

Policing

Examining Deadly Police Encounters for Black Women and Girls Jessica Judson* Jessica Judson Megan Faust Sowmya Satagopan Katherine Andrinopoulos Rachel Hardeman Katherine Theall Thomas LaVeist Aubrey Madkour

Black women and girls (BWGs) are at an elevated risk of being killed by police, yet few studies have focused on the factors that increase their exposure and contribute to their deaths. Using the Fatal Encounters database we identified cases of BWGs killed between 2000 and 2019 (n = 547). We conducted thematic analyses of the description provided, supplemented by publicly available reports, to (1) assess how each BWG came into contact with police, (2) examine how each encounter developed and resulted in her death, and (3) identify what other individuals and systems were involved in or impacted by the encounter. Preliminary results reveal several trends in the types of issues and sequences of events. By and large, BWGs' contact with police was involuntary and incidental, that is, they were not the primary targets of police investigations. A notable number of BWGs are killed through the active pursuits of other people, principally Black men and boys, they are in close relationships with, neighbors to, or generally living near. Consequently, BWGs are primarily killed at home or in a vehicle. High speed chases were frequently a mechanism for this, predominantly initiated by property crimes and minor traffic violations. Violent crime perpetration by BWGs was uncommon, however, violent interactions that preceded a police-killing were largely connected to substance use (drug or alcohol intoxication), mental health crises, or ongoing domestic and intimate partner violence, including intimate partner homicides perpetrated by police officers. These preliminary findings underline the far-reaching consequences of aggressive policing tactics, especially against Black men and boys, and highlight the need to re-assess which, if any, incidents are appropriate for police response. Reducing racial inequities in violence victimization requires a consideration of alternate approaches to public safety.

Environmental factors**Maternal race/ethnicity moderates the longitudinal association between residential greenness and birthweight** Samantha Gailey* Samantha Gailey

Background: Findings on associations between residential greenness and birthweight do not converge. Researchers have pointed to potential sources of bias in cross-sectional work (e.g., neighborhood selection) and cross-study population heterogeneity (e.g., differences by maternal sociodemographic characteristics) as plausible explanations for inconsistent findings. To fill these gaps, this study explored racial-ethnic differences in longitudinal associations between residential greenness and birthweight.

Methods: I used a probabilistic linkage strategy to identify births to the same mother in California between 2007 and 2015 and examined whether increases in residential greenness between pregnancies correspond with higher birthweight. Maternal fixed effects models were used to control for potential unmeasured confounders, including factors that may influence both where a mother lives and her birth outcomes. I conducted separate analyses for NH white (n=247,285) and NH Black (n=54,995) mothers to assess whether the association between residential greenness and birthweight differs by maternal race/ethnicity.

Results: Results of cross-sectional analyses show positive associations between residential greenness and birthweight for NH white and NH Black mothers. However, maternal fixed effects analyses indicate that increases in residential greenness between pregnancies correspond with higher birthweight only for NH Black mothers. Moreover, this positive greenness/birthweight result holds when restricting the fixed effects analysis to NH Black mothers who remain in the same neighborhood, but experience within-neighborhood increases in greenness across births.

Conclusion: Findings suggest that interventions that improve upon existing levels of greenness in the residential environment may reduce racial disparities in birthweight.

Structural factors**Mutual Aid Groups and their Public Health Impact in Communities Facing Structural Racism** Marie-Fatima Hyacinthe* Marie-Fatima Hyacinthe

Since the outbreak of the COVID-19 pandemic, mutual aid groups have become very important in supporting communities of color, immigrant communities, and low-income communities throughout the pandemic. These groups, which vary in size, structure, and scope, have helped people pay their rent, as well as buy groceries. They have supported bail funds for protestors and also helped elderly community members access vaccines. Research has shown how systemic racism and long-standing inequities have made these communities more vulnerable to COVID-19, and have negatively impacted vaccine access. However, there has been less research, especially in public health, about the ways that these communities have been able to support themselves in the absence of government and institutional support, and as a form of resistance to that structural racism.

Mutual aid groups are not new, nor are their impact on public health. However, there is a lack of public health research on the influence of mutual aid groups, especially among communities that face systemic oppression. This presentation will begin with a preliminary review of existing literature around mutual aid and public health, and discuss historical examples of mutual aid groups addressing health issues. It will conclude with suggestions of possible frameworks, including Black feminist theory, with which to guide future research around mutual aid, public health, and structural racism.

Structural factors**Perceived statewide policy climate, local immigration enforcement, and the mental health of Latinx immigrants in Georgia** Danielle Crookes* Danielle Crookes Emily Lemon Mayra Sainz Liliana Del Carmen Chacón Briana Woods-Jaeger

Immigrant-related policies co-occur at federal, state and local levels and can affect immigrants' health. Few studies have examined associations between perceived statewide policy climate and local immigration enforcement under the federal Secure Communities Program (SC). Immigration enforcement programs increase the policing and racial profiling of some immigrant communities and facilitate removals that disrupt families and communities. This exploratory analysis leverages data from our mixed-methods study of COVID-19 related stressors and the mental health of Latinx adults (n=145) who were undocumented or in a mixed-status family living in Georgia, a state with highly restrictive immigrant policy climate. We examined associations between respondents' perceived statewide immigration policy climate (Perceived Immigration Policy Effects Scale) and their county's SC enforcement rates (rates of ICE arrests, detainers, or removals per 100,000 county population). We also examined associations between these measures and depressive symptoms (CESD-10) and general anxiety disorder symptoms (GAD7). The study included six counties. In 2017, for example, ranges for arrests (8 to 301/100,000) and detainers (37 to 246/100,000) were wider than the range of removals (17 to 87/100,000) in these counties. No association between perceived policy climate and immigration enforcement was observed. Perceived policy climate was associated with increased depressive symptoms. ICE arrests were associated with modestly higher anxiety symptoms. Findings from this exploratory study suggest that in Georgia, perceived state policy climate may not align with local enforcement rates under a federal policy, although both the policy and enforcement exposures may be associated with worse mental health. We will contextualize our findings with the study's in-depth interviews with frontline workers and discuss limitations and future directions for larger studies of immigrant-related policies.

Biomarkers or biological pathways**Criminal Legal System Contact and Physical Health Outcomes Among U.S. Adults** Denise Mitchell* Denise Mitchell

Incarceration is all too common for US men, people of color, and those with low educational attainment. While incarceration has been shown to be detrimental for physical health, it is also an extreme form of contact with the criminal legal system. Recognizing this, scholars have begun examining whether pre-incarceration contacts with law enforcement—such as being stopped by the police, arrested, or convicted of a crime—are associated with US adults' health. While this research area is growing, findings are inconsistent regarding whether pre-incarceration contacts are associated with poorer physical health. This paper examines whether being stopped by police, arrested, convicted of a crime, or incarcerated are associated with allostatic load—a biomarker-based measure of cumulative wear and tear on physiological systems—among U.S. adults. I use a sample of Black, Latino, and White adults ages 34-43 from the National Longitudinal Study of Adolescent to Adult Health (n=3,800). Descriptive results show considerably higher contacts with the criminal legal system among men compared to women, Black men compared to White and Latino men, and among Black women compared to White women and Latinas. Descriptive results also show that men overall have higher allostatic load scores than women, Black and Latino men have higher allostatic load scores than White men, and Black women and Latinas have higher allostatic scores than White women. Preliminary regression results suggest that adults who have been arrested before or during young adulthood have higher allostatic load scores than their counterparts who have not been arrested. These preliminary findings suggest that contact with the criminal legal system in early and young adulthood may negatively impact young adults' health later in life. In the coming months, I will extend this work by using causal models to better estimate the effect of criminal-legal contact on allostatic load for Black, Latino, and White adults.

Life-course/developmental**Contextual Intergenerational Upward Mobility and Later-Life Health** Emma Zang* Emma Zang Nathan Kim

How do racial disparities in health outcomes form? Previous work by Chetty et. al, Venkataramani et. al, and others point towards intergenerational mobility as an unignorable dimension of stratification that is tied to health outcomes. Our approach fills in methodological and theoretical gaps in the relationship between intergenerational mobility and health outcomes by matching birth cohorts from intergenerational mobility data and data on health outcomes, studying multiple dimensions of health, exploring whether contextual-level mobility is distinct from individual-level mobility, and by disaggregating the health-mobility relationship across race and gender. To do so, we use race-and gender-specific data from Opportunity Insights on county-level intergenerational mobility for those born between 1978 and 1983, and data from the Panel Survey of Income Dynamics on individual-level mobility and health outcomes for the same birth cohort.

We find that county-level intergenerational mobility, or the difference in the national household income percentile for the child at age 16 and age 24, is significantly associated with self-rated health on a 5-point scale. This relationship is strongest for respondents' perceptions of their health; while the association between county-level intergenerational mobility and health is significant for self-rated health and when using the Kessler nonspecific distress scale, we find no significant association between mobility and health when examining the presence of chronic conditions or mortality. Our results point towards important psychological relationships from the mobility context of an individual and early-life health outcomes.

Life-course/developmental**Childhood Lead Exposure and Cognitive Functioning among Older Adults: Evidence from the Health and Retirement Study** Haena Lee* Haena Lee Mark Lee John Warren

Many children born in the early 20th century were exposed to water-borne lead, a neurotoxin that negatively impacts brain development. While lead exposure has been linked to poor cognition among children and young adults, no population-level research has examined the long-term implications of lead exposure for cognitive functioning in later life. Our study is the first to address this gap by utilizing novel data linkages between the 1940 U.S. Census and the Health and Retirement Study (HRS). Our sample includes respondents who were under age 17 (born 1924-1940) by the time of the decennial enumeration on April 1, 1940. Given that the dominant source of lead exposure was water during this period, we assessed lead exposure by using water chemistry and piping material data for each HRS respondent's city of residence in 1940. Late-life cognitive functioning for HRS participants (observed 1998-2016) was measured using the Telephone Interview for Cognitive Status.

We find that lead exposure during childhood is significantly and negatively associated with cognitive functioning in later life. HRS participants who lived in cities with lead pipes and acidic or alkaline water—the conditions required for lead to leech into municipal water—showed lower levels of cognitive functioning decades later as compared to other participants. This association persisted net of race, gender, childhood socioeconomic status and childhood health. However, the association was largely accounted for by adjusting for educational attainment. This implies that childhood lead exposure impacts later-life cognition via its effect on educational attainment.

Aging**Support from Adult Children and Parental Health in Rural America** Shelley Clark* Shelley Clark Elizabeth Lawrence Shannon Monnat

Adult children are a primary source of care for their aging parents. Parents in rural areas, however, live further from their adult children than parents in urban areas, potentially limiting the support they receive and compromising their health and ability to age in place. Our study draws on data from 5,022 older parents and 12,788 of their adult children captured in two waves (2013 and 2017) of the Panel Study of Income Dynamics (PSID) to investigate rural-urban differences in proximity of adult children to their parents, instrumental and financial support received from adult children, and the relationship of proximity and support to parental health. Logistic models clustered at the family level are employed to examine two specific research questions: 1) Does adult children's instrumental and financial support of their older parents differ by metro status, and how does proximity and parental health influence this support?; and 2) What role do adult children's proximity to and support of older parents play in explaining the rural health disadvantage among older parents? We find that rural parents live further from their adult children and receive less financial support, but they are more likely to receive instrumental assistance. In addition, rural parents have worse health and more functional limitations than urban parents, and these differences persist after controlling for proximity to and support from adult children. Our findings provide evidence that while related to instrumental support, physical distance is not a good proxy for support generally, nor does it explain the health disadvantages among older adults in rural areas. Rather than relying on proximity as a measure of support, researchers should consider alternative measures to better understand the complex relationships between spatial and social boundaries and their consequences for the health and well-being of older adults.

Social/relational factors**Race, the Built Environment and Social and Emotional Support among Rural Older Adults: The Case for Social Infrastructure** Danielle Rhubart* Danielle Rhubart

Rural America is home to disproportionately larger shares of older adults who face unique barriers to healthy aging. Federal initiatives to support older adult mental health emphasize the importance of social and emotional support (SaES). Social infrastructure (SI) - physical places that facilitate the formation and maintenance of meaningful relationships (e.g. coffee shops, libraries, religious organizations) - has received attention in the literature, but has been limited to case studies that largely exclude race and rurality. This is problematic because among rural older adults, Blacks are less likely (64%) to report their SaES needs were met compared to non-Hispanic Whites (81%) (author's analyses). To fill this gap I link new and innovative county SI data from the National Neighborhood Data Archive (NaNDA) with individual data from the 2010 Behavioral Risk Factors Surveillance System (BRFSS) and use logistic regression models stratified by race to examine the relationship between how often respondents SaES needs are met and SI density while controlling for measures of individual socioeconomic status, marital status, and county population size. While dated, this is the most recent year of BRFSS data that includes relevant variables and FIPS codes for data linking. Moreover, determining if a relationship exists establishes the foundation for subsequent work with restricted data. Preliminary results show that for rural Black older adults, those in counties with higher SI densities are more likely to report having their SaES needs met, net of the controls. The relationship is not significant for rural non-Hispanic White older adults. In the presentation, I will use merged data from 2006-2010 to increase the sample size for more robust analyses and control for county characteristics. This research widens the urban-centric focus of prior SI research and provides more attention to differential associations by race as the field seeks to better understand the relationship between SI and SaES needs of rural Black and Hispanic older adults.

Mental health/function**State lockdown policies, mental health symptoms, and using substances** Abhery Das* Abhery Das Parvati Singh Tim Bruckner

Abstract

Objective: Previous literature finds an increase in depressive symptoms, substance use, and suicidal ideation following the COVID-19 pandemic in the US – suicides do not appear to increase. We examine whether 1) state lockdown policies in the US precede an increase in mental health symptoms; and 2) the extent to which using substances amplifies or attenuates the relation.

Methods: We specified, as our exposure variable, the timing of state-level lockdown orders. We used, as the outcome variable, the 4-item Patient Health Questionnaire (PHQ-4) that measures anxiety and depression symptoms. We utilized the Understanding America Study (UAS), a nationally representative sample of 7,597 adults across 50 states in the US, surveyed biweekly between March 10, 2020 and November 11, 2020. Linear fixed effect analyses controlled for time-invariant individual factors, as well as employment status, household income, and previous mental health diagnosis.

Results: Regression results indicate an increase in PHQ-4 scores of approximately 1.70 during lockdown, relative to no lockdown ($p < 0.05$). Relative to no lockdown, an increase in alcohol use corresponds with a 0.08 unit decrease in PHQ-4 scores during lockdown ($p < 0.05$).

Conclusion: State lockdown policies precede greater mental health symptoms. Increases in consuming alcohol attenuates the relation between state lockdown policies and mental health symptoms. Results may portend greater addiction following the pandemic warranting further investigation into utilization of substance use treatment.

Migration**'Immigration Policy Vulnerability Linked to Depression and Anxiety Among Latino Day Laborers'** Alein Haro* Alein Haro

Latino day laborers in the United States (U.S.), primarily undocumented men from Latin America, experience precarious social conditions heightened by immigration policies that limit access to resources, restrict everyday activities, and impede upward mobility. Immigration policies shape the day-to-day work and life experiences of these migrants by forcing them into the informal labor market and discouraging their use of public benefits. These policies thus increase exposure to acute and chronic stressors, including discrimination, social isolation, and constant fear of deportation. Anti-immigrant rhetoric and recent changes to immigration policy, including increased enforcement, barriers to legal migration, and changes to the Public Charge rule, may increase vulnerability. Using a convenience sample, our study examines the degree to which the vulnerability experienced by Latino day laborers due to immigration policies is associated with symptoms of depression and anxiety. Multivariable linear regression models separately estimated the effect of immigration policy vulnerability, as measured by the Perceived Immigration Policy Effects Scale (PIPES), on 1) anxiety symptoms using the Generalized Anxiety Disorder (GAD-7) scale and 2) depression symptoms as measured by the Patient-Health-Questionnaire (PHQ-8). The analytic sample includes 124 foreign-born, male day laborers (mean age=44.9, standard deviation=12.0 years). In our sample, 26.1% and 27.9% of respondents report depression and anxiety symptoms, respectively. In the adjusted linear regression, a standard deviation increase in the PIPES score was associated with a 1.46 point [95% CI: 0.75, 2.20; $p < 0.000$] increase in PHQ-8 scores and a 1.52 point [95% CI: 0.75, 2.29; $p < 0.000$] increase in GAD-7 scores. Immigration policy vulnerability is associated with worse mental health among Latino day laborers. Steps to mitigate immigration policy vulnerability, such as a pathway to citizenship and employment authorization, are warranted in their own right and can additionally decrease the prevalence of anxiety and depression in vulnerable populations.

Mental health/function**Neighborhood Social Cohesion and Serious Psychological Distress among Asian, Black, Hispanic/Latinx, and White Men and Women in the United States** Lauren Gullett* Lauren Gullett Dana Alhasan Braxton Jackson Symielle Gaston Ichiro Kawachi Chandra Jackson

Serious psychological distress (SPD) is more common among women, older adults, and individuals with a low-income. Prior studies have highlighted the role of low neighborhood social cohesion (nSC) in potentially contributing to SPD; however, few have investigated this association in a large, nationally representative sample of the United States. We used 2013-2018 data from the National Health Interview Survey to investigate nSC and SPD among Asian, Non-Hispanic (NH)-Black, Hispanic/Latinx, and NH-White men and women in the United States (N=168,573) and to determine modification by age and annual household income across race/ethnicity. nSC was measured by asking participants four questions related to trustworthiness and dependability of their neighbors, and scores were trichotomized into low (<12), medium (12-14), and high (15-16). SPD was measured using the Kessler 6 psychological distress scale with scores ≥ 13 indicating SPD. After adjusting for sociodemographic, health behavior, and clinical confounders, we used Poisson regression with robust variance to estimate prevalence ratios (PRs) and 95% confidence intervals (CIs). The mean age \pm standard error was 47 ± 0.1 years, 51.9% were women, 68.9% were NH-White, and 58.9% of participants had household incomes $< \$75,000$. Overall, low vs. high nSC was associated with a 13% higher prevalence of SPD (PR=1.13 [95% CI: 1.11-1.15]). Associations between low vs. high nSC and SPD varied by age (PR _{≥ 50 years old}=1.17 [95% CI: 1.14-1.20]; PR _{< 50 years old}=1.09 [95% CI: 1.06-1.12]). The association between low vs. high nSC and SPD was greater among those with incomes $\geq \$75,000$ vs. $< \$75,000$ in NH-Blacks (PR _{$\geq \$75,000$} = 1.23 [95% CI: 1.04-1.46]; PR _{$< \$75,000$} =1.06 [95% CI: 1.02-1.11]) and Hispanics/Latinxs (PR _{$\geq \$75,000$} =1.21 [95% CI: 1.11-1.32]; PR _{$< \$75,000$} =1.08 [95% CI: 1.03-1.12]). The inverse nSC-SPD relationship varied by age and income across race/ethnicity. Enhancing cohesion through trust and social support may help address SPD.

Mental health/function**Covid-19 Related Discrimination Contributes to Mental Health Disparities for Black and Asian American Populations** Rengin Firat* Rengin Firat Shayna La Scala Bruce Link

Recent data has demonstrated that ethno-racial minorities have experienced substantially elevated morbidity and mortality during the Covid-19 pandemic in the United States. But, the burden of the illness does not stop with Covid alone, as ethno-racial minorities may also experience disproportionate upsurge in their stress levels and mental health outcomes. We suspect that Covid related racial discrimination will add to the current disparities of mental health outcomes, unevenly burdening communities of color. Recent reports from opinion polls show that Black and Asian Americans report facing increased levels of racial discrimination since the start of the pandemic (Ruiz, Horowitz and Tamir 2020). Building on the Stress Process Model (Pearlin and Bierman 2013) and the Fundamental Cause Theory (Phelan and Link 2013, 2015), we propose Covid-19 related discrimination as a critically important cause of stress and associated mental health disparities. We investigate the mechanisms associated with this possibility using a novel, comprehensive Covid related stress scale that takes into account different health, economic and isolation related stress dimensions, a Covid-19 related discrimination scale (adapted from Everyday Discrimination Scale by Williams et al. 1997), and an internalized barriers to care scale about perceptions of stigma and barriers related to accessing mental health care (adapted from Hernandez, Bedrick, and Parshall 2014 and Link et al. 2015). We test the new COVID stress measures in a relatively large, new national study (N=2308) that also included measures of anxiety and depression. Analyzing our data with structural equation models, we find that Black and Asian American respondents in our sample report greater levels of Covid-19 related racial discrimination. Furthermore, Covid-19 related racial discrimination significantly increases depression and anxiety both directly and indirectly via magnifying perceived barriers to mental health care, even after controlling for several socio-economic factors, Covid-19 exposure and previous mental health diagnosis. These results are important in demonstrating newly emerged mental health disparity patterns due to Covid-19 related racial discrimination in populations with previously low mental health problems (i.e., Blacks, Keyes 2009) and exacerbate existing mental health conditions among those who are less likely to seek mental health care (Lee et al. 2014).

Gender**Sexual Activity in the Early Phase of the COVID-19 Pandemic: Data from a National Survey of U.S. Women** Stacy Lindau* Jyotsna Jagai Jyotsna Jagai Jennifer Makelarski Emily Abramsohn Meryl Davis Charlie Fuller El Pinkerton Kristen Wroblewski

Pandemic-related intimate partner violence, financial insecurity and other stressors may increase a woman's vulnerability to unwanted sex. U.S. women experienced significant increases in these and other health-related social risks (HRSRs) in the early pandemic, yet little is known about pandemic-related changes in women's sexual activity and experiences. April 2020 data from a national panel-based survey of 3200 U.S. women ages 18-90 years were analyzed to describe patterns of pre- and early pandemic sexual activity, including unwanted sex (having sex more frequently than desired). Logistic regression, adjusting for sociodemographic characteristics, self-reported health and pre-pandemic HRSRs (food and housing insecurity, interpersonal violence (IPV) and physical violence, specifically), was used to model odds of unwanted sex by pandemic-related change in HRSRs. Among women who were sexually active pre-pandemic, 55% reported no change in the frequency of sex in the early pandemic, 28% reported less frequent sex and 17% reported more frequent sex. Most women were having about as much as (63%) or less (31%) sex than desired. One in ten sexually active women reported unwanted sex in the early pandemic phase; 61% of these women (versus 7% of others) were having more frequent sex since the pandemic. Women having unwanted sex were significantly more likely than others to be partnered (married/in a relationship), non-Hispanic Black, have one child and have one or more pre-pandemic HRSRs. Compared to women who were secure at both time points, the odds of unwanted sex were 3-4.5 times higher for women with worsening food insecurity (aOR 3.0, 95% CI 1.7, 5.4), housing insecurity (aOR 4.5, 95% CI 1.4-15.6) and IPV (aOR 2.9, 95% CI 1.5, 5.6) and 6 times higher (aOR 6.0, 95% CI 2.9, 12.4) for women reporting worsening physical violence, specifically. Pandemic-related worsening of modifiable HRSRs may increase unwanted sex among women.

Gender**An examination of the reproductive health of transgender and non-binary adults: Findings from the Behavioral Risk Factor Surveillance System, 2015 to 2019** Bertha Ben Khallouq*
Bertha Ben Khallouq

LGBTQI+ health studies primarily focus on lesbian, gay, bisexual, transgender, questioning, and intersex individuals as a group and compare these samples to heterosexual, cisgender samples. This approach centers hetero-cisgender identities as the norm and erases sexual and gender diversity. This study centers the visibility of transgender and non-binary (TGNB) people. We assess differences in reproductive health among U.S. TGNB adults and use an intersectionality lens to discuss ethnic/racial differences health patterns. We use the Behavioral Risk Factor Surveillance System health survey collected annually by the CDC. Most TGNB people in this sample identified as white (2494/3613; 69%). Compared to racial/ethnic minorities, white TGNB people reported higher educational attainment and income, and better access to health coverage and less likely to be limited to healthcare due to financial costs ($p_s < .05$). Trans men reported better health than trans women and non-binary people ($p = .010$). Differences were noted regarding proportions of an annual health exam ($p < .001$), mammogram ($p < .001$), and pap test ($p < .001$). Trans women were less likely to get an annual exam. Non-binary people were less likely to have ever had a mammogram at 46% vs. 30% (trans men) and 39% (trans women), $p < .001$. Among biological females, trans males were less likely to have ever had a pap test at 19% vs. 26% (non-binary) and 41% (trans females), $p < .001$. Theoretical contributions include decentering hetero, cisgender identities as the norm and our empirical contributions, add to the emerging literature that suggests racial/ethnic minority TGNB individuals are more negatively impacted, than their white TGNB counterparts. Findings indicate that it is imperative to recognize the diverse needs of healthcare among TGNB people and that structural barriers to care, such as education, economic and social capital, must be considered when developing programs to ameliorate health disparities in TGNB communities.

Policy

Association of state gestational age limit abortion laws with infant mortality Maeve Wallace*
Maeve Wallace Dimitris Karletsos Charles Stoecker Dovile Vilda Katherine Theall

Importance: A growing number of state legislatures have passed laws that restrict access to abortion care after a specified gestational age (gestational age limit laws). The impact of these laws on maternal and child population health outcomes and inequities is unknown.

Objective: To determine whether states that implement gestational age limit laws experience subsequent changes in rates of infant mortality.

Methods: Using US population-based data from the National Center for Health Statistics Linked Infant Birth-Death Files (2005-2017), difference-in-differences models were estimated using multivariable linear regressions to compare trends in infant mortality (all-cause and cause-specific rates) in states with gestational age limit laws relative to states without such laws. Models stratified by maternal racial/ethnic group explored racial heterogeneity in the law's impact.

Results: This study included 16,232,133 births in states that enacted a gestation age limit abortion law and 36,472,309 births in states that did not from 2005-2017. In difference-in-difference analyses, gestational age limit laws were associated with 0.23 excess infant deaths per 1,000 live births (95% CI, 0.09 to 0.37; $P < 0.01$). In cause-specific analyses, gestational age limit laws were associated with 0.10 additional infant deaths due to congenital anomalies per 1,000 live births (95% CI, 0.02 to 0.17; $P = 0.01$). Associations between gestational age limit laws and infant mortality in models stratified by maternal racial/ethnic group were not statistically significant.

Conclusions and relevance: Based on data from 2005-2017, states that enacted gestational age limit abortion laws subsequently experienced increase rates of infant mortality. Infants born in states that restrict access to abortion at a specified gestational age are at greater risk of death compared to infants in states without such a restriction.

Socioeconomic status**Diseases of Despair following the Great Recession: Trends, Economic Drivers, and the Role of Medicaid Expansion** Christopher Lowenstein* Christopher Lowenstein Chris Lowenstein

To what extent did the uneven economic recovery following the 2007-2009 Great Recession affect mortality and morbidity due to drugs, suicide, and alcohol-related illness (DSA) in the United States? The disconcerting trends and potential economic drivers of these “deaths of despair” have been well-studied and debated in existing literature, but less work focuses exclusively on trends in post-recession years - a period characterized by heterogeneous economic recovery due to the demographic and skill composition of the workforce, disproportionate impacts of trade across local labor markets, and other place-specific factors. This period also included a large increase in public insurance access as a result of state-level Medicaid expansion, a policy that may have moderated the effect of economic stagnation on despair-related outcomes. Data for this study come from restricted-access mortality and hospital inpatient records from 2010-2017 combined with county-level economic indicators from the Quarterly Workforce Indicators. Leveraging county-level variation in economic conditions in the years following the Great Recession, I estimate a series of two-way fixed effects models to examine the effect of lagged and contemporaneous measures local economic performance on DSA mortality and a set of related, but non-fatal conditions including alcohol- and opioid-use disorders, serious mental illness, and suicidal ideation. Preliminary estimates suggest that increases in aggregate employment rates significantly decrease mortality due to alcohol-related illness among women and men ages 45-64 with no effect on other causes of death or among younger workers. Meanwhile, improved economic conditions appear to decrease inpatient admissions for opioid-related causes among women but not men. I also find preliminary evidence that increases in the employment rate increased hospitalizations for mood disorders among men and women ages 19-44, an effect primarily driven by inpatient stays for bipolar disorder. Analyses currently in progress include examining gender- and age- specific employment shocks using a shift-share (or Bartik) instrument to mitigate confounding bias, as well as interactions with state-level Medicaid expansion to assess the potential moderating effects of increased health insurance coverage.

Health equity**Comparing dimensions of employment quality and their conceptual underpinnings to available data in the United States** Emily Q. Ahonen* Emily Q. Ahonen Megan R. Winkler Kaori Fujishiro

Employment quality (EQ) describes the terms and conditions of employment and the power dynamics between employer and employee. It has gained growing attention for its contribution to population health inequities. Researchers, mostly in Europe, find that sub-populations marginalized by societal sorting mechanisms (e.g., women) are more likely to be in poorer-quality employment and that poor EQ associates with poor health and wellbeing. Fortunately, EQ is amenable to change through improved practices and policies.

Despite promise for providing insight into patterns of population health and mechanisms for change in the US, EQ remains challenging to *conceptualize*, *operationalize*, and *analyze*. Developed outside the US, current conceptualizations may require specification here; the institution of work is embedded in US sociopolitical contexts that change the way social institutions, including work, are set up and maintained. Moreover, the small number of US studies that approximated the EQ concept in US data may have led to a fallible fit between the spirit of the concept and its use. Further, analytic choices made by researchers can obscure important impacts of EQ that impede understanding of inequitable health patterns. All these challenges have implications for the usefulness of research; without measuring and analyzing EQ adequately in specific social contexts, a solution based on results may not address the roots of the problem in the specific society.

We clarify conceptual underpinnings of EQ and compare the dimensions of EQ to items available for operationalization in several major US data sets. We identify benefits and drawbacks of available items, explore gaps between these and EQ concepts, and compare the measurement strategies undertaken by other US researchers, considering strengths and limitations of choices in light of underlying assumptions in them. Finally, we highlight specific needs for new data to help fill gaps in understanding of EQ in the U.S. context.

Migration**Education-labor mismatch and health outcomes among immigrants in the US** Aresha

Martinez-Cardoso* Amel Omari Laura Chen

In the US, immigrants are disproportionately represented among overeducated workers in the labor market relative to other workers in the same occupation (De Jong & Madamba, 2001). For example, 62 percent of migrants with bachelor's degrees and 79 percent with master's degrees are overeducated for their occupation—a 10 percentage point disparity relative to US-born workers with similar levels of education (Chiswick & Miller, 2010).

While prior studies have explored how overeducation among immigrant workers shapes their economic and social incorporation in the US, few have explored its relationship to physical health (Chiswick & Miller 2009). Downward occupational mobility, however, has the potential to exact a toll on immigrant health through stress mechanisms. This is born out in qualitative work that describes the impact overmatch has on immigrant wellbeing and quantitative studies that have found a positive relationship between mismatch, social mobility, and depression among immigrants (Dean & Wilson, 2009; Ro, 2014; Ro & Goldberg, 2017; Nicklett & Burgard, 2009; Alcántara et al., 2014).

To contribute to this growing literature, we use the 2010-2012 waves of the Health and Retirement Study (HRS) to interrogate how education-labor mismatch shapes health outcomes among a representative sample of US and foreign-born older adults. We leverage labor history data in the HRS to capture workers' experience of education-labor mismatch. We find that overmatch is positively associated with several deleterious health outcomes, including poorer self-rated health, smoking, and stress-sensitive biomarkers such as C-reactive protein and A1c. Further, the relationship between mismatch and health outcomes is stronger for immigrants compared to US-born workers. Our analysis offers a novel contribution to the literature by exploring how a unique manifestation of social inequality in the US, education-labor mismatch, may be consequential for the health and wellbeing of immigrants.

Health equity**BLACK-WHITE DISPARITIES IN WOMEN'S PHYSICAL HEALTH: THE ROLE OF SOCIOECONOMIC STATUS AND RACISM-RELATED STRESSORS** Nicholas Smith* Nicholas Smith

Black women experience elevated rates of physical illness when compared to White women - disparities that are only partially explained by socioeconomic status (SES). Consequently, scholars have called for renewed attention to the significance of racism-related stressors in explaining Black-White disparities in women's physical health. Drawing insights from the biopsychosocial model of racism as a stressor and the intersectionality perspective, I examine the extent to which SES and racism-related stressors - i.e., discrimination, criminalization, and adverse neighborhood conditions - account for Black-White disparities in women's self-rated physical health and chronic health conditions. Results indicate that Black women report lower SES and greater exposure to racism-related stressors across all domains. Additionally, I find that SES and racism-related stressors jointly account for more than 90% of the Black-White disparity in women's self-rated physical health and nearly 50% of the Black-White disparity in chronic health conditions. Theoretical and policy implications of these findings are discussed.

Race/Ethnicity**Hustle culture, socioeconomic status, and hypertension among Black adults** Caryn Bell*

Caryn Bell

The average White family in the U.S. has 13 times the amount of wealth of the average Black family due to historic and contemporary institutional racism in policy and practices. These inequities in wealth are also observed among college-educated Black adults. Because of this, there is a growing segment of the Black American population participating in “hustle culture”. The concept of hustle culture among Black Americans explores the response to racial inequities in wealth and income with adherence to norms and expectations of entrepreneurship, but also long work hours and multiple jobs. Though these work-related experiences may be necessary to financially support one’s household (particularly given racial wealth, income, and employment inequities), “hustle culture” may also be stressful and have negative health impacts. This study sought to determine the impact of elements of “hustle culture” on hypertension among Black adults. Moreover, this study examined whether socioeconomic status (SES) moderated these associations. Using data from the 2007-2014 National Health and Nutrition Examination Survey, the associations between working >40 hours per week, receiving income from self-employment while working for a business or other entity (i.e. a “side hustle”), and hypertension were assessed and multiplicative interaction terms were used to assess moderation by SES. Results demonstrate that having a side hustle while working >40 hours per week is associated with 98% higher odds of hypertension compared to people who do not have a side hustle (OR=1.98, 95% CI=1.11-3.54). The study also found that working long hours moderated the association between education and hypertension. Among those who worked ≤40 hours per week, those with a college degree had lower odds of hypertension compared to those who did not finish high school (OR=0.61, 95% CI=0.38-0.97). However, among those who worked >40 hours per week, college education was positively associated with hypertension (OR=2.56, 95% CI=1.05-6.24). The results of this study demonstrate the complex and at times deleterious impacts of hustle culture on hypertension among Black adults.

Structural factors**The Physiological Effects of Foreclosure and Financial Strain among Young Adults:****Evidence from the Great Recession** Jess M. Meyer* Jess M. Meyer Kathleen Mullan Harris
Stephanie Koning Thomas W. McDade

The U.S. housing crisis intensified during the Great Recession of 2007-2009 and its aftermath as the economy struggled to recover from the worst economic downturn since the Great Depression. Substantial research shows that housing instability during this period was associated with poor physical and mental health among individuals who experienced home foreclosures as well as those who lived near foreclosed properties or in neighborhoods with higher foreclosure rates. Most of this research, however, is based on non-representative or local samples, cross-sectional data, or self-reported measures of health. In addition, research tends to focus on older adults, while younger adults are more vulnerable to housing instability and its effects, with fewer assets to fall back on and shorter home ownership tenure. In this study, we use new data from Wave V of Add Health to investigate whether young adults who experienced housing instability in years during and following the Great Recession have a greater risk of stress-mediated physical health detriments. Wave IV (2008-2009) is our analytic baseline and Wave V (2016-2018) is the follow-up, when respondents were asked whether they experienced foreclosure, eviction or repossession since 2008. We test whether such housing instability is associated with change in physical health indicators from baseline to follow-up, including an increase in inflammation (CRP), elevated blood pressure, BMI, diabetes, hyperlipidemia, adiposity, and metabolic syndrome . In fixed-effects models, young adults who experienced housing instability between 2008 and 2016-18 exhibited a greater increase in probability of elevated blood pressure. Future analysis will examine other health outcomes and how financial strain in this time period, in addition to housing instability, predicts changes in physical health.

Place/Communities**Neighborhood Opportunity and Health: A Comparison of Opportunity Indices in California**

Jenny Lynn Wagner* Noli Brazil Jenny Wagner Raziel Ramil

Structural economic and social opportunities tend to come bundled together at the neighborhood level. There is increasing empirical evidence that these opportunities have positive benefits on the health of residents above and beyond their individual attributes and household-level resources. As a consequence, many policies have been developed to alleviate neighborhood disadvantage and increase spatial opportunity. An integral part of this process involves identifying neighborhoods with high and low levels of opportunity. Conceptually, the notion of spatial opportunity is both simple and intuitive: neighborhoods, as unique packages of resources, institutions, and socializing agents, are likely to have a powerful influence on the welfare and life chances of their residents. Yet, multiple approaches to measuring neighborhood opportunity exist, leading to a proliferation of opportunity indices across policy, practice and academic research. In this study, we survey how current methods conceptualize opportunity and delineate their differences and similarities. Specifically, we compare and contrast the following opportunity indices in California cities: (1) CalEnviroScreen, which identifies neighborhoods disproportionately burdened by multiple sources of environmental hazards; (2) the Low Income Housing Tax Credit Opportunity Mapping Index; which informs where affordable housing is built; (3) the Regional Opportunity Index; which is a general opportunity index used by practitioners and community based organizations; (4) the Child Opportunity Index, which measures neighborhood opportunity as it relates to child well-being; and (5) Opportunity Atlas' measure of social mobility, which traces the roots of poverty to the neighborhoods in which children grew up. In addition to examining the relationship between these indices, we examine their associations with various measures of ecological health and well-being.

Structural factors**Income Inequality and Population Health: Examining the Role of State Policy** Michael McFarland* Michael McFarland Terrence Hill Jennifer Montez

An abundance of work over the last three decades has shown income inequality is associated with diminished life expectancy. Further, brand-new work points to social policies, particularly liberal social policies, as key levers for improving population health. In this study, we integrate these bodies of research by testing whether the longitudinal association between income inequality and life expectancy is mediated and moderated by policy liberalism in US states. We test these ideas using two-way fixed-effects models with autocorrelation-corrected standard errors for the years 2000-2014. We find: (1) income inequality is associated with decreased policy liberalism; (2) income inequality is associated with decreased life expectancy; (3) policy liberalism is positively linked to life expectancy; (4) policy liberalism does not mediate the association between income inequality and life expectancy and; (5) policy liberalism moderates the negative association between income inequality and life expectancy such that income inequality is unrelated to life expectancy among states with the highest levels of policy liberalism but negatively linked to life expectancy with high inequality and low policy liberalism. These results underscore how state-level differences in life expectancy are rooted in a structural process by which income inequality undermines the implementation of beneficial social policies that otherwise would provide a shield from the undesirable consequences of income inequality. Our study also reveals that income inequality is not universally detrimental to population health and demonstrates how states like New York, Connecticut, New Jersey, and California, despite displaying steep levels of income inequality, also enjoy relatively high life expectancy. We conclude with a discussion of the theoretical and methodological implications of our work and offer several promising directions for future research.

Reproductive health**Differences in Determinants: U.S. Labor Induction Rates and Maternal Risk Factors across Race/Ethnicity** Ryan Masters* Andrea Tilstra Ryan Masters Daniel Simon Kate Coleman-Minahan

Labor induction rates have increased across all U.S. states and for all race/ethnic groups since the 1990s. Yet, maternal risk factors for induction have not concurrently increased, and differ by maternal race/ethnicity. The pervasiveness of structural racism in obstetric care results in inadequate care and poor maternal and child health outcomes for women of historically marginalized race/ethnic groups. In this paper we focus on induction of labor, an obstetric intervention that when used unnecessarily can increase risk of negative outcomes for women and infants. We aim to assess whether state-level measures of maternal risk (e.g., proportion of mothers with hypertension) explain race/ethnic-specific trends in labor induction rates. We use data from the National Vital Statistics Systems restricted birth data to analyze race/ethnic-specific trajectories of labor induction rates for all 50 U.S. states and the District of Columbia from 1990 to 2017. We use fixed effects models to assess how state-level risk factors account for the increases in labor induction rates over time. Preliminary results indicate that state-level indicators of risk, including proportion of mothers with hypertension, with diabetes, and teen births, are associated with rising labor induction rates among white women, but these factors do not explain increases among Black or Latina women. These results suggest that maternal risk does not fully explain increases in induction rates, particularly for Black and Latina women. Prior to IAPHS, we plan to incorporate indicators of state-level inequality (e.g., income inequality, proportion of families using WIC) and structural racism (e.g., residential segregation) to explain differences in induction rates over time by race/ethnicity.

Migration**Citizen Attitudes towards Immigrant Health(care) during COVID-19** Cesar Vargas Nunez*

Cesar Vargas Nunez

Growing anti-immigrant rhetoric has fueled strict limits on immigrant's access to welfare. Despite recent efforts, undocumented immigrants remain excluded from government healthcare programs. But can priming self-interest or ethics yield greater support for expanding access to the 11 million undocumented immigrants residing in the United States? I study this question in the context of the COVID-19 pandemic by evaluating the results of two original survey experiments. In the first survey experiment, respondents were given information about the COVID-19 pandemic along with one of three frames about healthcare exclusion. I find that reminding respondents about COVID-19's impact is insufficient to move attitudes unless it was accompanied by a self-interest or ethical frame. These positive effects remain significant among Democrats and Republicans. In a second survey experiment I introduce respondents to a group of individuals with varying work histories and immigration status. Despite risks from COVID-19, Democrats and Republicans do not view undocumented immigrants as fully deserving of government healthcare programs. Most damning, undocumented immigrants with solid work ethic are perceived as less deserving of healthcare than non-undocumented individuals with poor work ethic. These results suggest an area of bipartisan agreement where self-interest and ethical framings can yield increased support for expanding healthcare access to undocumented immigrants, even as immigration status continues to drive public perceptions about deservingness of welfare.

Biomarkers or biological pathways**Immigrant-related stressors associate with cardiometabolic and epigenetic biomarkers across generations of US Latinx immigrant families** Elizabeth Clausing* Elizabeth Clausing Amy Non

Psychosocial stressors can become embodied to alter biology throughout the life course in ways that may have lasting health consequences. Immigrants are particularly vulnerable to high burdens of stress, which have heightened in the current sociopolitical climate. This study is an investigation of how immigration-related stress (IRS) may impact the cardiometabolic health and epigenetic markers of Latinx immigrant mothers and children in Nashville, TN, considering recent increases in divisive rhetoric and anti-immigrant policies in the U.S. We compared stress and resilience factors reported by Latina immigrant mothers and their children (aged 5-13) from two time points spanning the 2016 presidential election with cardiometabolic health markers (BMI, waist circumference, and blood pressure). We also analyzed these factors in relation to DNA methylation in saliva of stress-related candidate genes (*SLC6A4* and *FKBP5*), generated via bisulfite pyrosequencing (n's range from 80 baseline to 36 follow-up). In mothers at baseline, social support was associated with lower BMI. At follow-up, discrimination and school stress associated with greater waist circumferences in children, and in mothers, acculturation was associated with lower BMI, while greater subjective social status was associated with lower SBP. After Bonferroni corrections, children's everyday discrimination at follow-up associated with 1 CpG site in *FKBP5*, and immigrant related stress associated with one site in *SLC6A4*. In mothers at baseline, total mother stress, IRS, health stress, and discrimination stress associated with various sites of *SLC6A4*. At both time points, mothers had significantly higher mean methylation at *SLC6A4* than children ($p < 0.001$). More research is needed to determine the role of these epigenetic differences for documenting embodiment of stress across generations.

Race/Ethnicity**Stop the Hate: The Association between Residential Segregation and the Prevalence of Anti-Asian Hate Crimes** Carolyn Fan* Carolyn Fan

Background: Since the beginning of the COVID-19 pandemic in the US, there have been nearly 3,000 anti-Asian hate crimes logged by community organizations. This wave of anti-Asian violence is driven not only by recent rhetoric around COVID-19, but also by interpersonal and structural racism against Asian Americans that has been deeply rooted in the US for centuries. Despite the pressing nature of hate crimes and their impact on individual and community health, their social determinants remain largely unexplored in the public health literature.

Objectives: This is an exploratory, cross-sectional study examining the association between residential segregation of Asian Americans and the prevalence of hate incidents targeted at Asian Americans. We will: (1) describe the prevalence, geographic spread, and other characteristics of anti-Asian hate incidences, and (2) examine if cities with higher segregation of Asian Americans are more likely to have higher number of anti-Asian hate incidences per capita.

Methods: The study will utilize data collected by the Stop AAPI Hate Reporting Center. The data consist of hate incident reports submitted by individuals across the US since March 19th, 2020. As of February 2021, Stop AAPI Hate has received 2,808 firsthand incident reports. Measures of residential segregation of Asian Americans, namely the exposure index, and other confounders will be obtained from the US Census and the American Community Survey.

Findings: We hypothesize that there will be a significant positive association between Asian American segregation in a city and the number of anti-Asian hate incidences per capita.

Conclusions: The results of this study could encourage more rigorous confirmatory research on the fundamental causes of hate crimes. Once we better understand the determinants of hate crimes, we can act as public health practitioners to prevent, monitor, and mitigate hate crimes through community-based and anti-carceral solutions.

Place/Communities**The Process of Exclusionary Displacement and Implications for Health** Marisa Westbrook*

Marisa Westbrook

Exclusionary displacement - where low-income communities of color are moving out and unable to move into central urban neighborhoods - is a negative result of gentrification and a legacy of urban segregation through redlining. Current studies focus on health outcomes of displacement related to gentrification, not the process and mechanisms through which stressors accumulate over time. The experiences of low-income residents of color living in neighborhoods in early stages of gentrification is important to document in order to detail the building stressors of living at risk of displacement. Through 18-months of an ethnographic case study of a predominantly low-income Latinx immigrant neighborhood in Southwest Denver, Colorado, I examine the experiences of 35 renters and homeowners at risk of displacement over time to understand how experiences of neighborhood change and perceived threat of exclusionary displacement impact low-income residents' health and wellbeing. Posing this question over time in a neighborhood vulnerable to gentrification departs from classical theorizations of exclusionary displacement as an outcome, and instead frames it as a stressful and destabilizing lengthy process. Through this reconceptualization, exclusionary displacement manifests as stress and feelings of instability about the future long before gentrification imminently precipitates a move out of the neighborhood. In order to reduce negative health outcomes and increase urban equity, we need to intervene earlier on structural factors that contribute to the exclusionary displacement process.

Place/Communities**Informal Housing Provision and Health Inequality** Danya Keene* Danya Keene Alana
Rosenberg Penelope Schlesinger Kin Blankenship

The US is experiencing a severe affordable rental housing shortage that is likely to have significant health implications. The existing literature on housing and health has largely focused on how the characteristics of an individual's housing affects their own health. However, limited availability of affordable housing may also operate through community-level processes to affect population and health and health inequality. In particular, housing shortages may affect the health of community and network members who serve as informal housing providers to those who are otherwise locked out of housing opportunities. Furthermore, owing to an ongoing history of structural racism that has constrained housing access for black Americans through multiple systems (e.g., criminal justice, housing policy), any burden of this informal housing provision is likely to disproportionately impact black communities with implications for racial disparities in health. In this qualitative study, we examine the experiences of informal housing providers. Participants were recruited from a larger on-going cohort study of 400 low-income individuals based on their response to a survey questions about 'providing housing to someone who had nowhere else to go' and were purposively selected to include race and gender diversity. Our interviews identify numerous pathways through which informal housing provision may affect housing providers health and well-being. On the one hand, participants describe benefits of companionship and pooled resources. On the other hand, many describe care-taking burdens, sleep disruptions, added financial strain, severing of relationships, and a loss of control over their home environments. Many participants describe these challenges as necessary sacrifices for family and friends given the lack of alternative housing options and an inadequate housing safety net. While prior research has focused on how an individual's own housing affects their health, our paper examines what it means to have housing in a context of systematically unequal access to scarce housing.

Place/Communities**Perceived Neighborhood Social Cohesion among Intersectionally Minoritized Groups in the United States** Stephanie Hernandez* Stephanie Hernandez

Objective: Prior research has demonstrated a relationship between place and health. For example, higher neighborhood social cohesion is associated with better health outcomes. The objective of this project was to examine individual-level perceived neighborhood social cohesion for adults with intersecting minoritized racial/ethnic and sexual identities.

Methods: Descriptive statistics and ordered logistic regression analyses were conducted on females (n=86,866) and males (n=71,236) separately using the 2013-2018 pooled waves of the National Health Interview Survey. Respondents were categorized into nine groups: white heterosexual (reference), white bisexual, white lesbian/gay, Black heterosexual, Black bisexual, Black lesbian/gay, Hispanic heterosexual, Hispanic bisexual, and Hispanic lesbian/gay.

Results: All female groups except white lesbians, had lower neighborhood social cohesion scores compared to white heterosexual females. Similarly, among males, all male groups, except Black and Hispanic bisexual males, had lower social cohesion scores compared to white heterosexual males.

Conclusion: Separate bodies of research have demonstrated that racial/ethnic minorities and sexual minorities live in neighborhoods with lower neighborhood social cohesion compared to their white or heterosexual counterparts. This analysis suggests that most adults with intersecting minoritized identities live in neighborhoods with lower social cohesion compared to their white heterosexual counterparts. Future research should consider how structural systems of oppression such as racism and heterosexism, place individuals with intersecting minoritized identities at risk for living in neighborhoods with lower social cohesion and ultimately may place them at greater risk for poor health.

Race/Ethnicity**Racial and Ethnic Differences in the Relationship Between Food Insecurity and Housing Insecurity Among a Population-Based Sample of Mothers of Young Children** Erin Nolen*
Erin Nolen Catherine Cubbin

Objective: Studies have shown a link between food insecurity and housing problems, including trouble to pay rent. Women and households of color are at increased risk of these material hardships. We stratified a population-based sample of mothers of young children by race/ethnicity and examined the stability of food insecurity over time and its effect on housing insecurity. We utilized a global measure of housing insecurity and assessed for a potential mediating role of social cohesion.

Method: Data were analyzed from 2,868 women at two time points: Maternal and Infant Health Assessment (2003-2007) and the follow-up the Geographic Research on Wellbeing survey (2012-2013). Women were categorized as food insecure both times; became food insecure; became food secure; and food secure both times. We constructed a series of linear regression models for housing insecurity: 'crude' models regressing each variable separately; a 'sociodemographic' model regressing age, race/ethnicity, marital status, number of children in the household, educational attainment, income, and food insecurity status on housing insecurity; a 'mediation' model adding social cohesion to the sociodemographic model; and a mediation model for each racial/ethnic group.

Results/Conclusion: Groups of food insecurity status had higher risk of housing insecurity in a gradient pattern compared with those who were food secure both times. There was some evidence that social cohesion mediated the racial/ethnic, socioeconomic and food insecurity status relationships with housing insecurity, with Black women's housing insecurity risk becoming statistically similar to White women. Social cohesion and food insecurity status were significantly associated with housing insecurity for all racial/ethnic groups except Asian or Pacific Islanders. Efforts to reduce food insecurity and housing insecurity should consist of streamlined policy efforts that offer tangible supports for women and their families.

Place/Communities**Rethinking the effects of gentrification on health: A transdisciplinary conceptual model**

Shannon Whittaker* Shannon Whittaker

Current research on neighborhood change processes has established that gentrification is a significant determinant of health. Despite its clear connections to health outcomes, many questions about how gentrification influences health and the differential impacts it has on specific communities remain. Thus, this review offers a comprehensive conceptual model that illuminates the dynamic relationship between gentrification and health. Through a historical lens, the proposed model acknowledges the institutional production of unjust neighborhood conditions. Looking beyond contemporary practices and policies, the included historical analysis provides an explanation for the unequal burden of place-based inequalities on marginalized populations. Further, this model identifies five pathways linking gentrification to health. These pathways, namely physical changes, economic landscape, social interactions and culture, political power, and displacement, clarify how gentrification shapes population health. These pathways also illustrate how health impacts differ for residents within gentrifying neighborhoods, relative to those who are forced to leave. In light of the methodological challenges present in the study of gentrification, this conceptual model is intended to serve as a framework for future research, policy, and interventions that aim to reduce the toll of gentrification on individuals and neighborhoods.

Aging**Health-related social risks among female caregivers during the early phase of the COVID-19 pandemic** Jennifer Makelarski* Jennfier Makelarski Kelly Boyd Victoria Winslow Kristen Wroblewski Stacy T. Lindau

In the early pandemic phase, nearly half of all women experienced incident or worsening health-related social risks (HRSRs) (food/housing insecurity, transportation/utilities difficulties, interpersonal violence). Informal caregivers, the majority of whom are women, play a critical role in ensuring the health and well-being of chronically ill and other vulnerable individuals during the COVID-19 pandemic. Although HRSRs are modifiable, the effects of the pandemic on HRSRs among caregivers is not known. Data from the National Women's Health COVID-19 Study (April 2020) were analyzed. Women (N=3200) were recruited from an online research panel using a quota-based sampling strategy. Prevalence of HRSRs and financial strain and pandemic-related change in these factors were assessed using an adapted Centers for Medicare & Medicaid Services Accountable Health Communities screening tool. Nearly 1 in 3 women (n=944) was a caregiver. Caregivers were more likely than other women to be older, Hispanic or black, and employed. The prevalence of ≥ 1 pre-pandemic HRSRs was higher among caregivers (55% versus 39% of non-caregivers, $p < 0.01$). Prevalence of ≥ 1 pre-pandemic HRSR varied by the care recipient's primary condition, ranging from 75% of caregivers of people with arthritis to 38% of caregivers of people with dementia ($p < 0.01$). Caregivers had significantly higher odds of experiencing any incident or worsening HRSRs in the early pandemic (aOR: 2.4; 95% CI 1.9-3.1); this difference was driven primarily by higher rates of worsening food insecurity (aOR: 2.4; 95% CI 1.9, 3.1) and financial strain (aOR: 2.6, 95% 2.0, 3.2) among caregivers. Informal caregivers have been largely excluded from pandemic-related policies that support the occupational health and social needs of healthcare and other essential workers. Excess HRSRs among women caregivers, and the implications for care recipients, warrants attention in COVID-19 response and recovery policies and interventions.

Biomarkers or biological pathways**The Biological Burden of Social Inequity: Examining Disparities in Cumulative Biological Risk Trajectories from Early to Late Adulthood** Christine Walsh* Christine Walsh

Chronic psychosocial stress has been indicated as an important driver of U.S. health disparities that likely operates through interacting behavioral, cognitive, and biological pathways. A closer examination of how continual stress exposure manifests as physiological dysregulation may be particularly salient in explaining the development of observed adult chronic disease patterning on a national level. Yet, no study to date has documented longitudinal changes in cumulative biological risk with age over a wide swath of the lifespan or across varying sociodemographic groups. The current study aims to fill the gap using an innovative life course research design to model age-trajectories of allostatic load (AL) – a cumulative indicator of biological risk that is also conceptually useful in assessing embodied social inequality. I conduct integrative data analysis that combines biomarker data from three U.S. population-based longitudinal cohort studies (i.e., the National Longitudinal Study of Adolescent to Adult Health, Midlife Development in the U.S., and the Health and Retirement Survey) to create a pooled dataset covering individuals ages 24 to over 95 from multiple birth cohorts. I further examine associations of AL trajectories with gender, race-ethnicity and adult educational attainment, as well as the intersection of these multiple dimensions of social identity. This comprehensive life course study will contribute new knowledge about the temporal dynamics of AL as individuals age and how social status may define disparities in lifetime biological risk. In turn, findings may help advance an understanding of embodied chronic stress exposure as an underlying and enduring source of health inequity. This study also illustrates the application of novel data analytic tools by integrating multiple existing studies, opening new methodological directions in population health science.

Biomarkers or biological pathways**Growing Educational Inequality of Physiological Functioning Among Older Adults In the United States** Matthew Farina* Mateo Farina

Studies focusing on health and aging have pointed to the growing educational inequalities in the United States, which were largely due to health declines among Americans without a college education. These studies have evaluated the increased risk of mortality, especially among Whites with a high school degree or less. However, these studies have largely focused on “deaths of despair” (i.e. drug overdoses and suicides) and few have evaluated how overall health has declined in the US population. The objective of this study is to understand how physiological functioning (as measured by biological age) has changed for older adults across education group over the last three decades. We use the National Health and Nutrition Examination Survey (NHANES) to examine changes in biological age for older adults 50-79. Results show that educational inequality in biological aging increased across time period. While each education group experienced a decrease in biological age, college educated had a disproportionately large decrease. These decreases were most pronounced among women. We did not find that obesity or medication usage explained the increasing educational advantage. This study points to improvements in biological aging among older adults in the United States over the last three decades, but with a widening educational disparity. The greater improvement in physiological functioning among college educated adults presents unique challenges to address socioeconomic health inequality in the coming decades.

Biomarkers or biological pathways

HPA axis activity and early child development: curvilinear associations between hair-derived hormones and multiple domains of socioemotional functioning among children in rural Pakistan. Allison Frost* Allison Frost Ashley Hagaman Victoria Baranov Siham Sikander Joanna Maselko

Children living in low and middle income countries (LMICs) are at increased risk for mental, physical, and cognitive difficulties across the lifespan. Regulation of the Hypothalamic Pituitary Adrenal (HPA) axis may be one mechanism linking early stressful experiences (e.g., poverty, exposure to violence) to child socioemotional outcomes (Koss & Gunnar, 2017). However, the longitudinal association between HPA axis activity and child development is not clear, especially among young children living in low-resource contexts (Bates, Salsberry, & Ford, 2017). In a sample of children from rural Pakistan ($n = 104$, 46% male), we examined the longitudinal associations between HPA axis markers, including hair-derived cortisol and dehydroepiandrosterone (DHEA) at 12 months old and socioemotional development, psychological symptoms, and language skills at 36 months old. Participants were part of the Bachpan project, a cohort study embedded within a cluster randomized control trial of a maternal depression intervention. Both linear and curvilinear effects were examined using Generalized Estimating Equations to account for clustering at the village level. Models controlled for study arm, child family socioeconomic status, child sex, and child age at the time of hair sampling. Results showed a quadratic relationship between early cortisol and later emotional problems ($B = .50, p < .01$) and conduct problems ($B = .47, p < .01$). This suggests that having relatively high or low hair cortisol during infancy places children at risk for increased psychological symptoms during early childhood. In addition, DHEA at 12 months was associated with higher language skills ($B = 1.02, p < .02$) and prosocial behavior ($B = .33, p < .01$) at 36 months. Overall, results point to the protracted effects of cortisol and DHEA during infancy on development in early childhood, as well as the complex curvilinear associations among these factors.

Disability**Disability status and multi-dimensional personal well-being among adolescents in the Southern Highlands Region of Tanzania: results of a cross-sectional study** Sarah Quinones*

Sarah Quinones Tia Palermo Tumpe Mnyawami Lukongo Paul Luchemba Respichius Mitti Karen Devries Richard de Groot Atif Khurshid Hannah Kuper

Objective: Examine how disability status among adolescents is associated with schooling, livelihoods, health, violence, and psychosocial well-being.

Design: Cross-sectional data from 2018 were obtained from the second round of an on-going study of adolescents living in poor households in two regions of the Southern Highlands of Tanzania (Iringa and Mbeya). We use the Washington Group (WG) Short Set indicators to measure disability and undertook logistic and linear multivariate regressions to understand the association between disability and the outcomes of interest.

Participants: The sample included 2274 participants aged 15-20 years living in households participating in a government social protection programme targeted to households living in extreme poverty.

Results: Overall, 310 participants (14%) were classified as having disabilities. Outcomes not associated with disability status included literacy, schooling, livelihoods, and self-efficacy. Adolescents with disabilities were less likely to report good or very good health (aOR= 0.39, 95% CI: 0.29-0.52) and had increased odds of reporting depressive symptoms in (aOR=1.46, 95% CI: 1.11-1.90), emotional violence (aOR=2.18, 95% CI: 1.49-3.20), and physical violence (aOR=1.71, 95% CI: 1.13-2.59), compared to those without disabilities. Reports of depression were higher among males, and violence was more prevalent among females. Patterns of association were generally similar between males and females, although the association of disability with markers of well-being reached statistical significance more often among males.

Conclusion: This study highlights areas where adolescents with disabilities are falling behind their peers in terms of personal well-being. These findings suggest that interventions may be needed to mainstream disability in programs and policies aiming to improve well-being among adolescents.

Environmental factors

Residential instability is not associated with changes in perceived food environments despite objective changes in grocery store availability among primary food shoppers in historically redlined neighborhoods Gwendolyn Donley* Gwendolyn Donley William Bush Andrew Curtis Darcy Freedman

Background: A key dimension of food access is individual perception of food environments. The perceived environment predicts many health behaviors, but the relationship of objective food environments to changes in perceptions of food environments is poorly understood. Moving represents a life event that may precipitate both a change in objective and perceived food environments. Among primary food shoppers in historically redlined neighborhoods in two urban communities in Ohio, we examined how residential instability (i.e., change in housing during the 3-year study timeframe) influenced perceptions and objectively measured food environments.

Methods: Using three years (2015-16, 2016-17, 2017-18) of data from 403 participants (n=100 movers), we assessed predictors of residential instability and change in perceived food environments using mixed effect models controlling for social, economic, and environmental covariates. We then examined only those experiencing residential instability to determine how much their objective food environment changed based on data from the USDA Food Atlas.

Results: 25% of participants experienced a move over three years, with 21% of those moving to a “worse” and 25% to a “better” objective food environment. Individuals experiencing residential instability had significantly more people in their households, lower education, and lower annual household income than others. Despite measurable objective changes, perceptions remained stable over time. Moving to a better objective food environment did not have marked improvements on perceptions.

Conclusions: Perceptions may be affected by broader systemic forces influencing housing instability such as job insecurity that also structure food shopping patterns. Rapid changes in perception will likely not come from objective improvements to food environments. These findings highlight the need for measures capturing the nuance of underlying systems contributing to perceptions and dietary behavior.

Gender**Stressful life events, intimate partner violence, and perceived stress in the postpartum period: longitudinal findings in rural Pakistan** Sarah Haight* Sarah Haight Lisa Bates Joanna Maselko

Background: While the relationship between intimate partner violence (IPV) and stress is well documented, the directionality is uncertain as IPV can cause stress, but stress can also trigger IPV onset or exacerbation. Few studies have used longitudinal data to better understand the nature of these relationships.

Methods: We used longitudinal data from 12, 24, and 36 month (mo) postpartum waves of the Bachpan study in rural Pakistan. Using adjusted log binomial and linear regression, we estimated the relationships between stressful life events (12 mo), occurrence and severity of past year physical, sexual, and psychological IPV (24 mo), and perceived stress (36 mo).

Results: Among our sample of 1,154 women, the most common life events were financial problems (27.2%), social status changes (24.1%), and worries about children's problems (14.6%). The prevalence of physical, psychological, and sexual IPV was 9.4%, 41.6%, and 27.7%, respectively. After adjustment, an additional stressful life event was associated with a slight increase in the likelihood of each IPV type. Among those exposed to IPV, stressful life events were only associated with an exacerbation of psychological IPV. Physical IPV (versus none) was associated with a subsequent 5.7 (95% CI: 3.9-7.6) point increase in perceived stress score. Occurrence and severity of psychological IPV were associated with a 3.0 (95% CI: 1.8-4.2) and 2.3 (95% CI: 1.5-3.0) point increases in perceived stress score. Occurrence and severity of sexual IPV was associated with a 3.0 (95% CI: 1.7-4.4) and 1.2 (95% CI: 0.6-1.8) point increase in perceived stress score.

Conclusions: Stressful life events may increase the likelihood, and to a lesser extent, the severity of IPV, which can subsequently increase stress. Efforts to disrupt this cycle and better support women and their families as they go through stressful life changes may reduce the likelihood of intimate partner violence and increased stress in the postpartum period.

Health equity

Social capital disparity among Texas healthcare regions: an ecological analysis Julianna Dean* Julianna Dean Daniel Jupiter John Prochaska Amol Karmarkar Isabelle Kusters Kenneth Ottenbacher Timothy Reistetter

Inequities in the US healthcare system are prevalent; health outcomes vary drastically among populations. Social risk factors, e.g. socioeconomic and community factors, negatively affect health outcomes despite quality care. Structural social capital—a risk factor in the community—is an objective factor describing the activities, number, and type of local institutions in an area. Low social cohesion affects health through a strong relationship with income inequality. Research indicates in areas with income inequality, individuals are less trusting and less likely to participate in social organizations. Inequality in social capital may also exist and affect health, but research is sparse. The purpose of this study was to examine disparity among Texas healthcare regions—Hospital Referral Regions. We used the 2014 county-level social capital index by Rupasingha et al., where high values indicate high social capital. We used the silhouette index, a type of clustering method, to assign an index (-1-1) to each region; the higher the index the less disparity. As some regions extended beyond Texas state lines we clustered a total of 267 social capital indices (diverse range -2.95-7.16) into 22 regions (range of 2-31 counties in each). Harlingen was the only region to have a high silhouette index (0.72), indicating similar, yet low social capital between the two counties in that region (-2.41, -2.31). A sensitivity analysis in this region yielded similar results. For 19 out of 22 of the Texas HRRs, there was a negative silhouette index. The overall silhouette width for Texas was -0.48, meaning there was substantial disparity within and between Texas healthcare regions. Results of this study can be used to identify regions and counties in which to focus strategies to increase social capital and reduce disparities. This will help to mitigate the effects of social risk factors, which is a current policy strategy to improve health equity in the United States healthcare system.

Health equity**Using innovative care transition strategies in low Income, COVID19 patients to provide high quality care while dismantling racism** Jenny Bernard* Jenny Bernard Victor Carrillo

The recent novel COVID-19 pandemic has exposed the racial and ethnic health inequities that result from structural racism. In the United States approximately half-million people have died from COVID-19; however, this impact was larger in the underserved population when compared to other groups. This profound impact has resulted from systemic issues such as lack of access to care, unemployment, poor housing, insufficient access to information, lack of trust and cultural barriers. In this presentation, the largest health care system in New Jersey will share lessons learned during the COVID-19 pandemic that can be replicated to dismantle structural racism one hospital at the time. Since the onset of the pandemic, this health care system admitted over 10,000 patients with COVID-19, but an extra layer of support was added to the care provided to a cohort of underserved patients. The additional services included evidence-based interventions such as addressing social determinants of health, connecting patients to ambulatory sites, and utilizing technology to stay connected. This cohort had superior outcomes than a comparable group with 100% post discharge follow up, access to medications, transportation to all visits, and other services. In this presentation we will share strategies to identify inequities or structural racism, discuss how to develop a transitions of care model to address those gaps, list metrics to track results, discuss methods to sustain results by creating a business plan that can be used to secure resources to replicate this program.

Health equity**Changes in Depressive Symptoms, Physical Symptoms, and Sleep-Wake Problems during the COVID-19 Pandemic among Young Adults: Inequalities by Socioeconomic Position, Race, and Gender** Thomas Fuller-Rowell* Thomas Fuller-Rowell

Stress process theories suggest that stigmatized or disadvantaged groups are more likely to be exposed to psychosocial stress and have fewer available resources to cope with this stress when it occurs. Furthermore, in times of stress such as pandemics, stigma and bias against marginalized groups may increase. Building from on these perspectives, and from evidence that the toll of COVID-19 has been greater in disadvantaged and minority communities, we examine whether Black and lower socioeconomic status (SES) young adults had greater increases in depressive symptoms, physical symptoms, and sleep-wake problems than White and higher SES young adults during the pandemic. Gender differences were also considered. The sample consisted of Black and White college students at a predominantly White institution in the Southeastern region of the United States ($N=263$, 52% Black, 48% White, 53% female). Participants were recruited to participate in a pre-pandemic assessment (T1; October 2018 to May 2019). A pandemic assessment (T2) was conducted approximately one year later (April 27 - June 12, 2020; 76% retention). Increases between T1 and T2 were evident in depressive symptoms, physical symptoms, and global sleep problems. Females had greater increases than males in depressive symptoms, global sleep problems, and physical symptoms. Students from disadvantaged SES backgrounds had greater increases in physical symptoms. Among White students, those from disadvantaged backgrounds also had greater increases in sleep problems. Lastly, daytime sleepiness increased more among Black male than White male students. Overall, findings suggest notable shifts in sleep and health during the early phase of the pandemic among young adults, and that attention to inequities by SES, race, and gender is warranted.

Infectious or Microbial

SARS-CoV-2: An empirical investigation of Rose's population-based logic Tim Bruckner* Tim Bruckner Abhery Das

Background: Geoffrey Rose's paper "Sick Individuals, Sick Populations" highlights the counterintuitive finding that the largest share of morbidity and mortality arises from populations engaging in low- to moderate-risk behavior. In this study, we examine whether and to what extent this logic applies to SARS-CoV-2 infected persons considered low- to moderate-risk. Despite the intuitive appeal of Rose's logic to SARS-CoV-2, we know of no empirical evidence using a representative population that quantifies whether persons that do not engage in high-risk behavior—and those that self-identify as low-risk—account for the majority of SARS-CoV-2 infections. This gap in the evidence base arises because, owing in part to limited testing capacity, few regions (including California) have enacted routine population-based surveillance of SARS-CoV-2 and coupled this information with surveys on health behaviors.

Methods: We conducted a population-representative survey and serosurveillance study for SARS-CoV-2 among adults in Orange County, California. Participants answered questions about health behaviors and provided a finger pin-prick sample from July 10th-August 16th, 2020.

Results: Of the 2,979 adults, those reporting low- and moderate- risk behavior account for between 78% to 92% of SARS-CoV-2 infections. Asymptomatic individuals account for 52.7% of SARS-CoV-2 infections. Low- and moderate- scores for self-reported likelihood of having had SARS-CoV-2 account for the majority of infections.

Conclusions: Drawing from a large and diverse population-based sample of adults in a large Southern California county, our findings support Rose's logic. Persons self-reporting low- to moderate- risk behaviors pertaining to SARS-CoV-2 account for the overwhelming majority of SARS-CoV-2 infections in the community. This result underscores the importance of public health measures among persons who self-identify as unlikely to have SARS-CoV-2.

Life-course/developmental**Growing Up Poor While White in the US: Early Life Adversity, Whiteness, and Possible Selves** ERIKA BLACKSHER* ERIKA BLACKSHER

The detrimental effects of early life adversity are well established, reflected in a wide range of disorders and diseases (e.g., depression, cancer, and heart, liver, chronic lung, and autoimmune diseases), and thought to be a leading cause of poor health among US adults. A rare intersectional study (race, income, and immigrant status) of US child adversity found that immigrant status was protective and, consistent with significant and entrenched racial/ethnic disadvantages across multiple social sectors, that Black and Hispanic children experience more adversity than White children overall. This same study also found that White children “appear to be the most disadvantaged group at the lowest income level.” Beyond measurement error, why might growing up poor *while white* expose children to more adversity than their Black and Hispanic counterparts? No studies appear to have taken up the question. Drawing on Malat, Mayorga-Gallo, and Williams’s framework to elucidate the positive and negative effects of whiteness on the health of Whites as well as critiques of Whiteness, I will present a conceptual analysis of what might be going on in poor white households and situate that analysis within three decades of sustained declines in the health and longevity of working age low education whites. I explore how whiteness might influence and/or interact with (1) socioeconomic and gender expectations; (2) interpretations of adversity; (3) familial and psycho-social resources; and (4) individualism and meritocratic ideologies to create volatile households. This conceptual analysis will foreground intersectionality (race, class, gender) and child development as a social determinant of health. I then use this analysis to raise questions about the potential influence of these developmental contexts on the formation of white identities, expectations, and resources and their centrality to frameworks that seek to understand the effects of whiteness on the health of whites in the USA.

Life-course/developmental**Life-course victimization and epigenetic aging among sexual minority adults in the United States** Aura Ankita Mishra* Aura Ankita Mishra Kathleen Mullan Harris Carolyn Halpern Brandt Levitt

Advances in genomics research have allowed studies to examine and understand biological mechanisms that may influence health, aging, mortality, and well-being. One such mechanism of biological aging and related morbidity and mortality is epigenetic aging (epigenetic clocks from DNA-methylation of CpG sites across aging-related markers). Epigenetic clocks have become particularly important in understanding adversity-related disparities in accelerated aging when biological epigenetic age exceeds chronological age. Our study used a population-based model of life-course victimization association with epigenetic aging among sexual minority adults - a high-risk population for violence victimization. Data for this research (n = 340) included a national sample of sexual minority adults from The National Longitudinal Study of Adolescent to Adult Health (Add Health) that followed respondents from adolescence to adulthood over five data collection waves between 1994 and 2018. Epigenomic assays were conducted at Wave 5 with archival DNA data. Life-course victimization was assessed across the five waves and included - sexual, physical, and emotional abuse by a caregiver in childhood (before age 12), sexual, physical, and emotional abuse by a caregiver in adolescence (ages 12-18), criminal assault in adolescence, criminal assault in adulthood (>18), physical intimate partner violence in adulthood, and sexual assault in adulthood. The ten life-course victimization types were associated with three epigenetic clocks Hovarth (epigenetic aging), GrimAge (epigenetic aging related to morbidity and mortality risk), and PhenoAge (multisystem phenotypic aging). Preliminary findings reveal that exposure to criminal assault in adolescence and adulthood and physical intimate partner violence in adulthood were linked to accelerated aging processes assessed by the GrimAge clock above and beyond other victimization types, immune cell counts, and demographic covariates.

Mental health/function

Quantifying the Psychological Impact of Rental Assistance Whitney Denary* Whitney Denary
Andrew Fenelon Penelope Schlesinger Jonathan Purtle Kim Blankenship Danya Keene

Almost half of renters in the United States are rent-burdened, meaning that they pay more than 30% of their income toward housing costs. Rental assistance, a program administered by the U.S. Department of Housing and Urban Development, alleviates these financial strains for around 3.6 million households. However, due to budgetary constraints, only one in four eligible households actually receive this assistance and waitlists average 2 years nationally. Using a sample of 400 low-income adults living in an urban U.S. city, this analysis investigates how access to rental assistance may affect mental health. Our analyses examine how psychological distress differs among those receiving and those on a waitlist for rental assistance. We also draw on longitudinal data to examine whether transitions into rental assistance are associated with changes in psychological distress. We find that those receiving rental assistance report significantly less psychological distress than those on waiting lists. We also find that transitions into rental assistance are associated with a non-significant decrease in psychological distress. Expanding rental assistance is one potential step toward improving the mental health of low-income individuals in the United States.

Mental health/function**Assessing the Contributions of Stress and Coping to Racial/Ethnic Disparities in Mental Health** Alexis Dennis* Alexis Dennis

A paradox exists in the race and mental health literature such that when compared with Whites, Black Americans tend to report higher levels of psychological distress, but equal or lower rates of diagnosed disorders. Debate surrounding the mechanisms that underly this paradox is ongoing, and few studies have investigated whether this paradox extends to other racial/ethnic minority groups. I use data from the National Longitudinal Study of Adolescent to Adult Health to, first, document the social distribution of several coping resources among non-Hispanic White, non-Hispanic Black, and Mexican Origin women and men (n=10,800). Next, I test a multiple mediation/moderation model that examines whether and how a constellation of stressors and coping resources combine to give rise to the mental health paradox. Results to date extend the literature by documenting variation in the social distributions of a wide array of coping resources across racial/ethnic-gender groups. Findings also demonstrate the presence of a mental health paradox such that the odds of diagnosed depression among Mexican Origin women are equal to that of White men, while the odds of diagnosed depression among Black and Mexican Origin men are lower than that of White men. The next step in this analysis will be to simultaneously test how acute and chronic stressors and an array of coping resources combine to give rise to this mental health paradox. Collectively, the findings from this study will advance understanding of the underlying mechanisms that generate complex racial/ethnic patterns in mental health among U.S. adults.

Mental health/function**Inpatient Psychiatric Admissions Among Undocumented Immigrants at an Urban County Hospital** Senxi Du* Senxi Du Annie Ro Helen Yang Andrew Young

Undocumented immigrants in the US face unique mental health stressors. There is a paucity of literature exploring mental health in this growing population. This study compared inpatient admissions for psychiatric diagnoses based on documentation status. We reviewed inpatient admission data for Hispanic/Latino patients from Jan 1 to Dec 31, 2019 at an urban county hospital. Patients with limited scope Medi-Cal, a plan for those who meet Medi-Cal income requirements but do not qualify due to legal status, were coded as undocumented. All patients with Medi-Cal insurance were coded as documented. Reason for admission was determined by first-listed Clinical Classification Software (CCS) code. Multivariable logistic regression was used to report odds ratio of admission for CCS codes of interest by documentation status. There was a total of 6,167 (41.8%) admissions for undocumented patients and 8,603 (58.3%) for documented patients. Admissions for alcohol-related disorders among undocumented and documented patients were 286 (4.6%) and 292 (3.4%), respectively. Compared to documented patients, undocumented patients were more likely to be admitted for alcohol-related disorders (AOR = 1.52, 1.25–1.84). Documented patients had higher admission rates for almost all other psychiatric diagnosis categories. Compared to documented counterparts, undocumented patients were more likely to be admitted for alcohol-related disorders, such as alcohol intoxication and withdrawal. Though current literature suggests higher rates of alcohol use among US-born compared to foreign-born Latinos, undocumented immigrants may be more likely to require hospitalization for acute alcohol intoxication and/or withdrawal. Undocumented immigrants face unique stressors associated with legal status that may contribute to poor mental health. Future work should investigate under-recognized factors underlying these higher alcohol-related admission rates and devote resources to mitigating this health issue.

Mental health/function**Mental health in times of COVID-19: A mixed-methods study of the role of neighborhood parks and nature among U.S. older adults** Gabriela Bustamante* Gabriela Bustamante Viveka Guzman Lindsay Kobayashi Jessica Finlay

Background: The COVID-19 pandemic has elevated the risk of illness, restricted gatherings, and induced financial strain, thus impacting the mental health of aging populations. The potential role of parks and nature to boost mental health during this crisis is unknown. We examined associations between proximity to parks and mental health outcomes among older adults at the onset of the pandemic, and qualitative responses on outdoor engagement to better understand these relationships. **Methods:** We analyzed data collected in April-May 2020 from the COVID-19 Coping Study, a national mixed-methods study of U.S. adults aged ≥ 55 ($n=6,904$). We used logistic regression to evaluate associations between number of neighborhood parks and each of depression, anxiety, and loneliness, adjusting for individual and geographic covariates. In parallel, we conducted thematic analysis of qualitative responses regarding participants' outdoor experiences and perceptions during the pandemic. **Results:** Mean age of the sample was 67 years, 84% were non-Hispanic White, and 92% had at least one park in their neighborhood. The number of neighborhood parks was not significantly associated with mental health outcomes for urban and rural residents combined. Among urban residents alone, lower depressive and anxiety symptoms were associated with increasing number of neighborhood parks (p -trend: 0.03 and 0.08, respectively). Thematic analysis identified diverse engagement in parks, yards and greenspace including exercise, outdoor projects, and wildlife watching. Participants perceived that these activities boosted their physical, mental and social well-being. **Discussion:** During the COVID-19 pandemic, nature access may play an influential role in the well-being of older adults. While neighborhood parks were only associated with improved mental health among urban residents, the qualitative findings broadened consideration of therapeutic spaces to private gardens, landscape greenery and rural landscapes.

Methodological approaches to studying public health

Modifying Path Diagrams to Estimate Spurious Indirect Effects in Structural Equation Models Adam Lilly* Adam Lilly

It is common for population health researchers to ask how the effect of a focal independent variable changes after a confounder or mediator is added to a regression. There is not always clear guidance on how to obtain confidence intervals or standard errors to test the statistical significance of this change. Mediation analysis conducted in the structural equation modeling (SEM) framework is an improvement on this practice, as the analyst can estimate the direct effect of the focal independent variable as well as its indirect effect transmitted through the mediator. A confidence interval for the indirect effect is easily obtained using either the delta method or bootstrapping. It is well known that in linear models, the indirect effect is equivalent to the change in the effect of the independent variable after including the mediator in a regression. I show that SEM can also be used to estimate spurious indirect effects or confounding effects and provide rules for modifying path diagrams to accomplish this. I demonstrate the procedure through several population health examples that start with different hypothesized causal structures, using data from Add Health. Figure 1 depicts one example where we are interested in the effect of education on self-rated health. Age is included to show that confounding effects can be estimated in models with more complicated structures. According to the diagram, adjusting for the test score is sufficient to obtain an unbiased estimate of the effect of education on self-rated health. The unadjusted effect of education on self-rated health is 0.065. After adjusting for the test score, it is 0.067, a positive change of 0.002 units. We can recover this quantity, as well as its standard error (0.001) and associated p-value (0.201) by changing the direction of the two arrows pointing to education, estimating the full model in figure 2, and asking SEM software to provide the total indirect effect from education to self-rated health.

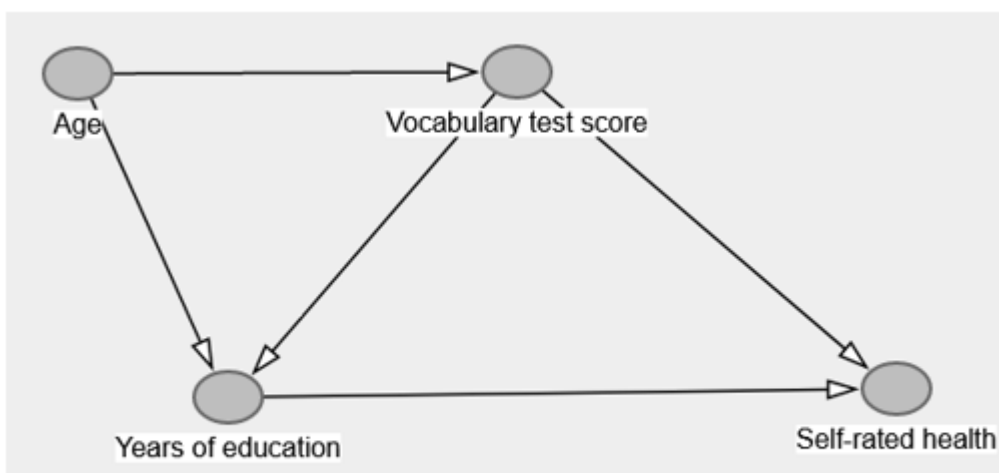


Figure 1

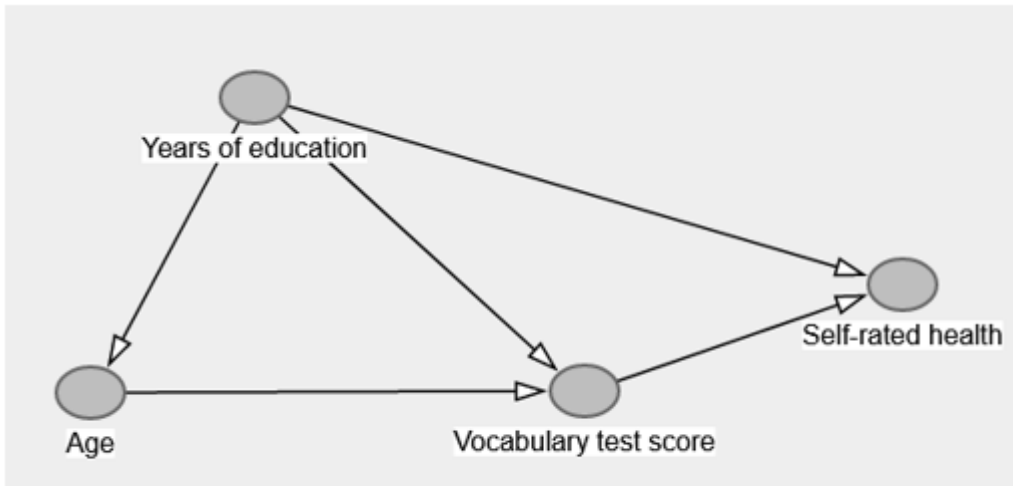


Figure 2

Methodological approaches to studying public health**Google Health API as a Public Health Tool During COVID-19: Opportunities and Challenges**

Krista Neumann* Krista Neumann Susan Mason Kriszta Farkas Jeanie Santaularia Jennifer Ahern
Corinne Riddell

Background: Interest in using internet search data such as the Google Health Application Programming Interface (GH-API) to examine patterns of disease is growing because they are accessible and near real-time. Researchers input search term(s), geography and time period, and the GH-API returns a scaled proportion of all searches within the specified geo-time period. In this study we detail a method for using these data to monitor weekly state-level child abuse during COVID-19, including enumeration of search terms and identification of challenges and solutions.

Methods: We systematically identified child abuse phrases, specifying a range of perpetrators and various tenses, conjugations and misspellings (e.g., mom hit(s) me). To confirm phrases were related to experiences of abuse, we conducted incognito searches and discarded irrelevant terms. We encountered two challenges in retrieving data: 1) GH-API suppresses data when searches are below a threshold, and 2) calculates proportions based on a random sample for each extraction, leading to sampling variability. To overcome these, individual phrases were combined to create a single search query. We also pulled multiple samples for each state-week to address missingness and improve precision.

Results: We identified 2,508 separate abuse phrases to concatenate into a single query and pulled 10 distinct state-week samples, with diminishing improvement to precision above 10 samples. We excluded 9 states with more than 50% missing data. After averaging over non-zero samples, 3 state-weeks remained missing. We found a slight reduction in child abuse search volume. Trends in the outcome were challenging to interpret because they may reflect changes in *either* child abuse-specific or total searches – a concern during the COVID-19 pandemic.

Conclusions: The GH-API can provide timely data on important public health trends. However, various challenges should be considered in study design, analysis, and when interpreting results.

Migration**A First Look: Disparities in COVID-19 Mortality Among US-born and Foreign-born Minnesota Residents** Kimberly Horner* Kimberly Horner Elizabeth Wrigley-Field JP LeiderIntroduction

The impact of COVID-19 on US immigrant communities is largely unknown. These data are needed to inform current and future public health responses.

Methods

The census of 2017 - 2020 Minnesota death certificates were obtained from the Minnesota Department of Health Office of Vital Records and used in 2021 to calculate crude and standardized COVID-19 mortality and excess mortality. Age- and gender-adjusted analysis utilized 15-year age groups capped at 65 years of age. A zero-inflated negative binomial regression model utilizing 2015-2019 ACS Minnesota subpopulation data as an offset term explores correlates with COVID-19 mortality, focusing on nativity.

Results

Compared to Minnesota's US-born population, the foreign-born have a younger mean age of COVID-19 associated mortality (72.4 vs 81.9, $p < 0.0001$). Minnesota's foreign-born crude COVID-19 mortality in 2020 was 126.9 deaths per 100,000 people, while Minnesota's US-born crude COVID-19 death rate was 130.0 per 100,000. However, the foreign-born age- and gender-adjusted death rate was 226.0 deaths per 100,000 compared to 121.6 per 100,000 among the US-born. When controlling for age, gender, and race, nativity remains a significant predictor of COVID-19 mortality in 2020.

Conclusions

Data highlight the presence of COVID-19 disparities across racial categories, and across US- and foreign-born populations in Minnesota. Characterizing COVID-19 mortality among the foreign-born population demonstrates the need for targeted public health interventions for this population.

Place/Communities

The Neighborhood Birth Gap: Examining the Relationship between Neighborhood Racial Diversity and Preterm Birth Bethany Wood* Bethany Wood Shetal Vohra-Gupta Yeonwoo Kim Catherine Cubbin

Significance

Racial concentration of neighborhoods is often associated with risk of preterm birth (PTB) for women. This study addresses differences between racially diverse and racially concentrated neighborhoods when examining PTB. We hypothesize that women living in predominantly Black or Latinx neighborhoods will have higher odds of PTB than women in diverse or predominantly White neighborhoods.

Data/Methods

We used 2009-2011 Texas natality files from birth certificates linked to the Neighborhood Change Database. The sample is all singleton births of women (N=210,565) in 1,127 racially diverse or predominantly Black/Latinx/White neighborhoods (21.4% of Texas neighborhoods). The dependent variable is PTB defined as live birth before 37 weeks gestation. The predictor is neighborhood racial diversity, categorized as racially diverse (143 neighborhoods), or predominantly Black (77 neighborhoods), Latinx (499 neighborhoods), or White (408 neighborhoods). We used multilevel modeling to assess the association between neighborhood racial diversity and odds of PTB. Covariates included individual-sociodemographics and neighborhood poverty.

Results

With diverse neighborhoods as reference, women living in Black neighborhoods had insignificant odds of PTB ($p > .05$), women living in Latinx neighborhoods had higher odds of PTB (OR=1.14, $p < .001$), and women living in White neighborhoods had lower odds of PTB (OR=0.82, $p < .001$). With White neighborhoods as reference, results were similar, but women living in Black neighborhoods (OR=1.22, $p < .001$) had higher odds of PTB. Neighborhood poverty was not a significant predictor once neighborhood racial diversity was added.

Conclusions

Neighborhood racial diversity matters for PTB. Our results suggest that systemic racism is still key to understanding PTB. Furthermore, findings support policies that prevent gentrification of diverse neighborhoods and promote equal access to healthcare for women in predominantly Black and Latinx neighborhoods.

Place/Communities**Public Deliberation Allows Residents to Articulate Community Values and Weigh in on Local Police Reforms** Shani Buggs* Shani Buggs

Following the tragic death of George Floyd and subsequent protests against police brutality and systemic racism, many states and cities across the United States have taken up proposals to improve resident and police interactions. It is an opportune time to bring together community members to engage in discussions on policy options for local police reforms. Our study purpose was to conduct and analyze findings from deliberative sessions on this topic, instructing participants to represent their community, not merely their own personal views. Key objectives of the study included: 1) providing neutral background information to participants that included their local police budget relative to other funded programs, along with four options to reform policing that elicit participant/community values; 2) facilitating structured discussions about the options and articulated values; and 3) examining the impact of the process on participant views on the policy proposals as well as key themes that emerged. We conducted twelve virtual sessions with a total of approximately 120 participants across three California communities between November 2020 and March 2021. The findings from this research will be shared with local decision-makers to help guide future considerations around the types of reforms needed to increase community residents' feelings of safety and trust in local police departments. The study shows how public deliberation can be used as an effective approach to illuminate community values and group-level considerations of fellow community members in a constructive and noncombative manner.

Place/Communities**Urban-Rural Differences in Tobacco-Free Food Retailer Availability, United States, 2017**

Alexandria Reimold* Alexandria Reimold Amanda Kong Paul Delamater Christopher Baggett Shelley Golden

Background. Tobacco use prevalence is higher in rural compared to urban settings, possibly due to differences in tobacco availability and exposure to tobacco marketing. Specifically, the option to purchase food in stores that do not sell tobacco (tobacco-free food retailers) may be a contributing factor. The goal of this research is to determine whether tobacco-free food retailer availability varies by urbanicity.

Methods. Using the 2017 National Establishment Time-Series database and North American Industry Classification System codes, we identified food retailers across the United States and determined whether they were likely to sell tobacco products. For outcome measures we determined 1) whether at least one tobacco-free food retailer was available and 2) the percent of tobacco-free food retailers in each census tract. We classified each tract by urbanicity using Rural-Urban Commuting Area codes. We fit both logistic and linear regression models to test whether census tract-level urbanicity (urban, suburban, large town, rural) was associated with our two outcomes.

Results. Compared to urban tracts, suburban tracts had lower odds (aOR = 0.77, 95% CI = 0.73, 0.81) of having at least one tobacco-free food retailer, while rural tracts had greater odds (aOR = 1.23, 95% CI = 1.15, 1.32). Both suburban tracts ($b = -2.29$, $p < 0.001$) and large town tracts ($b = -1.90$, $p < 0.001$) also had a lower percentage of tobacco-free food retailers compared to urban tracts.

Conclusions. Tobacco-free food retailers were more prevalent in urban compared to suburban and large town areas, though similarly or slightly more available in rural areas. Research should assess whether these differences depend on the varying store types available in different locations.

Place/Communities

Prevalence of community gun violence exposure and consequences for adolescent well-being: identifying sources of heterogeneity to disrupt the cycle of violence Nicole Kravitz-Wirtz* Nicole Kravitz-Wirtz Angela Bruns Amanda Aubel Shani Buggs

Community violence happens to people and places, and there is growing recognition that in violence-impacted communities not just individuals but whole communities are traumatized. Acts of community violence that someone may have no involvement in, exposure to, or knowledge of can still have effects on the social, physical, and economic environments in which they reside. In this way, community violence exposure and its consequences may extend to youth even if they do not report it and even if they do not hear or see it in person; yet conventional self-report survey data, combined with a dearth of fine-grained statistics on violence at the small-area level, prohibit examination of this broader conceptualization of community violence exposure. We argue that the result has been to greatly underestimate who is touched by community violence, in what ways, and with what consequences. We present findings from a CDC-funded project using data on a probability-based sample of youth from the 1998/00-2014/17 waves of the Fragile Families and Child Wellbeing Study geospatially linked with information on deadly gun violence incidents from the Gun Violence Archive (N~3000). Standard descriptive techniques are used to provide among the first nationally- and city-representative estimates of the frequency of exposure to deadly gun violence occurring within various distances from youths' homes and schools and within various timeframes throughout a year. Preliminary results suggest stark inequities in exposure by race-ethnicity, consistent with the disproportionate impacts of community gun violence on communities experiencing social and economic inequities, including racial residential segregation and concentrated disinvestment. Propensity score matching techniques are used to calculate average and heterogeneous impacts of youths' exposure to local gun violence on a range of social-emotional health and behavior outcomes at age 15. Results may shed new light on the ways that community gun violence exposure may be linked to factors that put young people at risk for future violence involvement, as well as provide valuable insight for primary preventive initiatives by identifying developmental assets and sources of support that may mitigate adverse outcomes.

Policy**Can Food Security Interventions Decrease Hospitalizations and ED Visits?** Kelley Akiya*

Kelley Akiya Jose Pagan

Prior to the COVID pandemic nearly 14 million people in the U.S. were food insecure, meaning they lacked consistent access to food due to limited money or resources. Food insecurity is a traumatic and stressful experience that also negatively impacts individuals' health. Individuals who have been food insecure are more likely to have chronic diseases, to be hospitalized, or to visit the Emergency Department (ED). In addition, they have a greater risk of death, and are more costly for the health care system. Policies like the Supplemental Nutrition Assistance Program (SNAP) and other food assistance programs have been shown to reduce food insecurity and improve health. However, research on how food assistance influences the use of the health care system is relatively novel and yet to be synthesized systematically. Therefore, the purpose of the proposed presentation is to discuss the findings and implications of our systematic review which examined the impact of food assistance on hospitalizations and ED visits, two high-cost health care services that can be avoided when non-medical needs such as housing, food, or employment are met.

The review covered peer-reviewed literature published through August 2020 and identified 20 studies that measured the association between food assistance and hospitalizations or ED visits. In general, studies reported that food assistance is associated with lower health care use, particularly SNAP and medically tailored meals which provide patients with nutritional home-delivered meals that are customized for their specific illness(es). However, the research designs used in most studies had major limitations. In addition, although food insecurity disproportionately impacts Black, Hispanic, and American Indian/Alaska Native households, the identified studies did not examine the role of food assistance in addressing health care disparities. Given that food insecurity overall and among racial minorities has increased during the COVID pandemic, future research should use more robust research designs to clarify how social and health care policies influence the way food insecure individuals use the health care system and the potential benefits or limitations of using food assistance interventions to achieve health equity.

Policy**Building a Healthier Rural Illinois: Understanding and Addressing the Challenges of COVID-19 in Rural Illinois** Sameer Vohra* Sameer Vohra Carolyn Pointer Thomas Albers Latiyfa Fields Amanda Fogleman Kara Bowlin

Rural Illinois is populated with dynamic, innovative and talented citizens. However, rural areas face unique challenges and health disparities, which result in a much sicker rural and underserved Illinois compared to its urban counterpart.

COVID-19 has disproportionately impacted rural Illinois and has deepened existing challenges. The pandemic has increased the pressure of already-strained rural healthcare systems, many lacking the workforce and hospital beds necessary to treat existing illnesses. The result is those in Illinois's non-metropolitan counties have died from COVID-19 at a greater rate than those in Illinois's metropolitan counties.

The pandemic necessitated a re-convening of topics of the Illinois Rural Health Summit, which identified major issues impacting health in rural Illinois in 2018. 80 rural health leaders from 55 organizations in diverse fields such as public health, health care, academics, industry and government met over a series of nine virtual discussions in late 2020 to discuss how the pandemic is affecting rural Illinois. Topics included rural economic development, workforce, children's growth and development, nutrition and fitness, mental health, opioids, public health systems, caring for our aging population and healthy housing.

The cross-sector discussions identified a shared struggle of Illinois's rural communities - suffering from "The Five D's:" Rural communities start at a DISADVANTAGE due to experiencing food, healthcare, social service and data DESERTS, as well as organizational and technological DISCONNECTION. Rural regions experience similar DISPARITIES to low-income urban areas but experience even fewer DEVELOPMENT opportunities than their urban counterparts.

To combat these overarching issues, the participants recommended the following policy solutions: (1) Improve Digital Literacy and Expand Telehealth Access; (2) Increase Mental Health Services; (3) Create Statewide Rural Taskforce to Study and Act; (4) Construct Regional Offices of Health to Coordinate Services and Reduce Redundancies; (5) Build Cross-Sector Systems of Care for Children and the Aging; (6) Invest in Rural Leadership Retention and Development; (8) Prioritize Sustained Development to Attract and Retain Rural Residents and Businesses; and (9) Maintain a Commitment to Equity.

Race/Ethnicity

Policing Race and Place during a Pandemic: A Multi-City Study Jaquelyn Jahn* Jaquelyn Jahn
Jessica Simes Brigette Davis Victoria Cowger

Objective: To examine the neighborhood rates and racial disparities in police arrests after initial stay-at-home orders were issued during the COVID-19 pandemic.

Methods: The study examines geospatial data on police arrests in census tracts in Boston, Charleston, Pittsburgh, and San Francisco for every week from January 2019 to May 2020. We examined all arrests, and specific arrest types potentially related to the pandemic environment. We use time-series models with census tract fixed effects to assess changes in rates of arrest pre and post stay-at-home orders, and variation in this change across census tract racial/ethnic composition.

Results: Compared to the nine weeks prior to stay-at-home orders, arrests declined significantly in all included cities except Charleston. Rates of arrest decreased between 24% (the week of stay order implementation 95% CI: 13-34%) and 58% (at 2 weeks post 95% CI: 51-65%). We also observed significant effect modification by neighborhood racial composition: whereas decreases in rates of arrest were not different across neighborhoods with a greater percentage of White residents, arrests decreased dramatically in neighborhoods with a higher percentage of Black residents. However, arrests increased in neighborhoods with a higher percentage of Asian and Hispanic residents.

Conclusions: Communities with higher concentrations of Black residents were the most chronically policed before stay-at-home orders, and the pandemic initially disrupted these racial inequities in neighborhood policing. However, for census tracts where arrests increased after stay-at-home orders, higher rates of arrest could have led to the spread of infection and other harms to health and community wellbeing. Municipalities should reconsider police capacity and presence, particularly as a mechanism for ensuring compliance with public health ordinances.

Race/Ethnicity**Intersectional Self-Assessed Health Disparities across Race, Gender and Socioeconomic Status, 2001-2018: Evidence from the National Health and Nutrition Examination Survey**
Zachary Franzoni* Zachary Franzoni

Explaining the persistence of self-assessed health disparities has been the focus of social scientific inquiry for decades. The application of intersectional perspectives to study health disparities has significantly advanced the field. The aim of this study is to examine the interactive effects of race, gender and SES on self-assessed health, as well as the magnitude of these disparities. By using data from the 2001-2018 National Health and Nutrition Examination Survey (n = 26,660), this study directly tests two competing explanatory models that attempt to address self-assessed health disparities; the protective effects hypothesis and the diminishing returns hypothesis. Results from this study indicate complex, non-additive patterns of self-assessed health disparities across race, gender and SES. This study finds the absence of health disparities at the lowest levels of SES, with the exception of Black women, who experience a uniform disadvantage across all levels of SES. Additionally, Black women do not have significantly diminished returns of SES on self-assessed health, whereas Black men do experience significantly diminished returns. White women have significantly increased self-assessed health returns to SES relative to their White male counterparts.

religion and health**Religion, Politics and County Population Health** Frances Sissamis* Gilbert Ramirez

Meta-regression was applied to examine between-county heterogeneity for three health quality outcomes: percent reporting poor or fair health, and average number of physically poor and mentally poor health days in last thirty days. Congregation membership and U.S. presidential voting patterns were compared to demographic predictors of population health to include population size, rurality, age, gender and race/race-related. The top four variables explaining heterogeneity (R-square %) were the number of evangelical congregations per 1,000 population (35.44%), proportion of population who are evangelical adherents (32.38%), proportion of population voting (23.30%), and proportion of population who are adherents, in general (13.96%). The multivariate meta-regression models consistently reflected higher proportions of adherents (general), congregations (general) per 1,000, and proportion associated with better health quality outcomes, and higher evangelical adherents and evangelical congregations per 1,000 associated with poorer health quality outcomes. These findings suggest religious and political factors should be considered when examining variation in health outcomes at the county level.

Reproductive health

Couples' perceptions of healthcare providers and health services during childbirth in rural Bangladesh: A qualitative study of concordance and discordance Priyanka Dubey* Priyanka Dubey Jacob R. Kundert S.M. Monirul Ahasan Dewan Md Emdadul Hoque William T. Story

Significance: The majority of women in rural Bangladesh use an untrained provider during childbirth. Previous studies on couples' perspectives related to childbirth have been largely quantitative in design and lack critical details about the decision-making process. This study uses dyadic analysis of birth narratives from wives and husbands to examine the concordance and discordance of decisions about childbirth in rural Bangladesh. **Methods:** We interviewed 24 couples in rural Bangladesh about their most recent childbirth experience using a semi-structured interview guide. We asked each partner the same questions at the same time, but in separate locations. We transcribed and translated all interviews into English and systematically coded transcripts from each birth narrative using NVivo 12.0. Using couples as the unit of analysis, we created analytic matrices to compare wives' and husbands' perspectives on healthcare providers and health services, emphasizing areas of concordance and discordance. **Preliminary results:** Most of the couples had concordant perceptions towards trained birth attendants (BA) where they believed them to have advanced knowledge on safe childbirth processes, possess required tools, and prioritized the safety of the child and the mother. A few couples had discordant perceptions. Some wives believed that newly trained BA were not as good, and people preferred traditional birth attendants (TBA). However, husbands believed that most people wanted to use trained BA, but due to financial burden, people resorted to TBA. Most couples had discordant preferences about birth location. Most wives preferred childbirth delivery at home whereas their husbands preferred hospital. The hospital setting and people were unfamiliar to the wives and, therefore, delivering in a hospital was stressful. Promoting programs that consider the perspectives of and power dynamics between wives and husbands is crucial to improve skilled obstetric care in low-resource settings.

Reproductive health**State income inequality and pregnancy-associated homicide, 2011-2018** Lauren Dyer*

Lauren Dyer Dovile Vilda Emily Harville Katherine Theall Maeve Wallace

Background

Pregnancy-associated homicide (homicide of a woman during pregnancy and up to 1 year postpartum) remains an understudied yet critical issue. This longitudinal study aims to examine the relationship between trends in state-level income inequality and pregnancy-associated homicide.

Methods

This analysis utilized two sources of data to identify cases of pregnancy-associated homicide from 2011-2018: restricted use mortality files provided by the National Center for Health Statistics (NCHS) and the National Violent Death Reporting System. Annual state-level pregnancy-associated homicide ratios were estimated as the count of deaths divided by the number of live births. The exposure, the state Gini index, was categorized into tertiles to compare states with a more equitable income distribution to those with greater levels of income inequality. We fit a longitudinal linear model with standard errors clustered at the state level and weighted by the number of live births in each state and year. In addition to including state and year fixed effects, we adjusted the model for state population-level urbanicity, unemployment rate, crime rate, racial composition, race- and gender-specific income ratios, age distribution, and an indicator for Medicaid expansion. Covariate data were obtained from the Everytown Research & Policy and the American Community Survey.

Results

The average annual pregnancy-associated homicide rate was 2.58 deaths per 100,000 live births. Those in the highest tertile of gini - those who experienced the greatest amount of income inequality - had a significant 1.28 per 100,000 homicide rate when compared to the lowest income inequality tertile.

Conclusions

The results of this analysis suggest that income inequality is associated with pregnancy-associated homicide.

Reproductive health**Impact of fracking on birth weight across the US** Summer Hawkins* Summer Hawkins Hailee Schuele Philip Landrigan Christopher Baum

As production from unconventional natural gas and oil development (i.e. fracking) has steadily increased, health concerns have been raised. Although a few studies have reported associations between prenatal proximity to fracking with poor birth outcomes, research has been on single localities limiting generalizability.

This study examined the impact of gas and oil production via fracking on birth weight overall and by race/ethnicity. We used 2005-2018 county-level natality files on 44,851,623 singletons from 50 states and DC linked with monthly production levels, defined as the sum of the distance-squared weighted production of all wells per county averaged across 9 months prior to birth, in quartiles. We conducted difference-in-differences linear regression models adjusted for demographic characteristics, prenatal smoking, gestational age, and year, with an interaction between well production and race/ethnicity, and clustering by county. We report average marginal effects.

While fracking sites reduced from 964 to 900 counties and 28 to 24 states from 2005 to 2018, respectively, gas production increased by 69% and oil production by 82% over this time period. Infants born in counties in the highest quartile of gas production had birth weights 15.45 grams less (95% CI 5.69-25.20) than those born in counties without. The equivalent measure for oil production was 19.56 grams (95% CI 10.48-28.64). A significant interaction ($p=0.02$) revealed that differences in birth weight between infants born in counties with versus without any fracking was smaller for Hispanic (-2.91 grams) and Asian (-1.51 grams) infants than white (-27.12 grams) and Black (-24.16 grams) infants (all $p<0.01$).

Prenatal exposure to higher volumes of production from fracking was associated with lower birth weights, particularly among white and Black infants. Our findings provide evidence that the effects of fracking extend beyond single localities to affect infants born in all states with fracking.

Structural factors**An Interdisciplinary Lens on COVID-19 Disparities: Health Inequities from Environmental Factors and Healthcare Infrastructure in the US** Jessica Levassuer* Leah Estrada Alexandra Maxim Gabriel Benavidez

Significance: Sociodemographic discrimination, healthcare infrastructure, and detrimental environmental factors systematically place vulnerable communities at increased risk of COVID-19 incidence and mortality.

Aim: This review aims to describe sociodemographic, healthcare infrastructure, and environmental factors that may contribute to COVID-19 incidence and mortality in vulnerable communities.

Methods: This interdisciplinary, narrative review examines underlying inequities of COVID-19 disparities guided by a modified County Health Rankings Model framework (created as a collaboration between the Robert Wood Johnson Foundation and University of Wisconsin). This framework outlines how systemic racism in healthcare and environmental policy (e.g., sociodemographic factors, healthcare infrastructure, and environmental factors) influence health outcomes in the United States.

Results: Topics most frequently cited on environmental racism included exposure of environmental hazards (such as air pollution and drinking water pollution), particularly in communities of low socioeconomic status and/or high racial/ethnic (R/E) minorities. Healthcare costs as a barrier for R/E minorities to healthcare access was heavily cited, in addition to transportation barriers, often resulting in delayed medical care. These healthcare infrastructure and environmental factors are compounded in vulnerable communities.

Conclusions and Implications: Prior to the pandemic, vulnerable communities experienced higher rates of environmental hazards, which have been associated with poor health outcomes. Barriers in healthcare infrastructure related to cost and access lead to delayed medical care. Together, these disparities contributed to COVID-19 susceptibility in vulnerable communities. Future interdisciplinary research exploring how jointly improving healthcare infrastructure environmental factors can enhance COVID-19 mitigation efforts in areas susceptible to future public health emergencies.

Structural factors**Childhood Poverty Deepens the Harmful Effect of Early-Life Income Inequality on Health in Adulthood** Michaela Curran* Michaela Curran

Early-life adversity has important implications for health across the life course. Evidence suggests that inequality is related to deleterious outcomes in children and young adults. However, it is less clear the extent to which early-life inequality exposure affects health over the life course, or whether or not childhood socioeconomic disadvantage intensifies these effects. In this article, I expand upon the previous empirical work by examining the lagged and cumulative effects of early-life inequality utilizing data from the Panel Study of Income Dynamics. I also examine the conditional hypothesis that the harmful effect of early-life inequality on health varies by childhood socioeconomic circumstances. I estimate hybrid panel models of early-life income inequality and poverty on three measures of health. My results indicate that the effects of early-life inequality on self-rated health, psychological distress, and activities of daily living varies by childhood socioeconomic context. Early-life inequality has a deleterious effect on health later in life for individuals who characterize themselves as growing up in a poor household. By contrast, early-life inequality has a positive effect on health later in life for those who characterize themselves as either middle- or upper-class. The pattern of results does not suggest an overall pollution effect of early-life inequality on later life health. Instead, early-life inequality appears to impact differentially those who grew up in poverty versus those who lived in middle- and upper-class households as child. Early-life inequality and poverty operate in tandem to shape later life health in a cumulative inequality process.

Aging**Racial and Economic Residential Segregation and Dementia Incidence** Dana Alhasan* Dana Alhasan Gary Larson Christian Douglas Frankie LaPorte W. Braxton Jackson II Chandra Jackson

Racial and economic residential segregation are fundamental determinants of racial disparities in health. Although prior research has demonstrated their association with chronic diseases such as cancer, the relationship between residential segregation and dementia incidence remains unknown. Therefore, we investigated the ecological relationship between residential segregation and incidence of dementia cases from the South Carolina Alzheimer's Disease Registry. We included cases diagnosed between 2010-2014 among men and women at least 50 years old, and geocoded addresses and zip codes (n=62,443) as well as aggregated them to the census-tract level (n=1,082). Residential segregation data were obtained from the Decennial Census and American Community Survey (2010-2014). Using the Index of the Concentrations at the Extremes (ICE), we defined three measures of residential segregation at the census tract level, which we labeled 'racial' (percent Non-Hispanic [NH]-Black), 'economic' (percent living in poverty), and 'racialized economic' (percent NH-Black who live in poverty) segregation. We fit Poisson generalized linear model to estimate the association between residential segregation and dementia incidence. Estimates of unadjusted standardized (race, sex/gender, age) dementia incidence was similar between the NH-Black (4.0 per 1,000 people per census tract; 95% confidence interval [CI]: 3.6-4.5) and NH-White population (3.2 per 1,000 people per census tract; 95% CI: 3.1-3.4). The overall standardized dementia incidence rate ratio (IRR) was 86% higher (IRR: 1.86; 95% CI: 1.65-2.10) for the worst compared to best quintile of racialized economic segregation. The worst quintiles of both racial (IRR=1.70; 95% CI: 1.50-1.92) and economic (IRR=1.82; 95% CI: 1.61-2.06) segregation were associated with higher dementia incidence, which highlights existing racial/ethnic inequities. These findings may be used to inform resource allocation and should be replicated in other dementia registries.

Biomarkers or biological pathways**Pursuing Racial Equality in Precision Medicine Research: The Combined of Effect of Neighborhood and Genetic Factors Risk on Diabetes Risk in African Americans** Kristen Brown* Kristen Brown Jessica Lewis Sharon DavisBackground

Diabetes, a chronic condition categorized by inefficient glucose metabolism, is an important public health concern with both environmental and genetic underpinnings. Due in part to residential segregation policies, exposure to neighborhood factors that are associated with diabetes risk differ along racial lines. Similarly, genetic studies have been conducted mostly in European descent samples, and the modest transferability to other ancestry groups has engendered unequal benefits of such research. In the present study, we assess whether neighborhood factors (socioeconomic, physical, and social) and a genetic risk score (GRS) developed in a European sample associate with fasting glucose in a sample of African-American adults.

Methods

We use data from the GENomics, Environmental FactORs and the Social DEterminants of Cardiovascular Disease in Africans Americans Study (GENE-FORECAST). Multilevel modelling was used to assess the association between main exposures (i.e. neighborhood level factors/GRS) and the main outcome (i.e. fasting glucose). ANOVA tests were conducted to determine whether there was a significant difference between neighborhood-only and neighborhood + GRS models.

Results

For neighborhood socioeconomic status and physical environment, the most advantaged group had significantly lower fasting glucose levels than the least advantaged group ($p=0.02$ and $p=0.01$, respectively). There were not significant associations between the social environment nor the GRS with fasting glucose. Adding the GRS to the neighborhood models did not improve upon any of the neighborhood factor only models.

Conclusions

As science moves towards precision medicine, studies that investigate the combined effects of genes and the environment are needed to best develop effective prevention and treatment strategies. Genetic studies with African American participants are needed to prevent the exacerbation of racial health inequalities in the precision medicine era.

Chronic disease

Food Insecurity and Mental-Physical Comorbidities among US adults LaToya O'Neal* LaToya O'Neal Ara Jo Lisa Scarton Marino Bruce

Background: The co-occurrence of mental and physical conditions has increased significantly over the last decade. However, research examining the influence of social factors such as food insecurity is limited.

Objective: The purpose of this study was to examine the association between food insecurity and mental-physical comorbidity status among U.S. adults.

Methods: Data for this analysis were drawn from the National Health and Nutrition Examination Survey (NHANES) for the years of 2013-2016. Comorbidity status was the primary outcome for the study and indicated whether respondents had no chronic conditions, at least one chronic metabolic condition, or depression and at least one chronic metabolic condition. Adult food security was derived using 10 out of 18 items on the Food Security Survey Module; with categories of low and very low food security denoting food insecurity. Other independent variables of interest included weight status, health behaviors, health status, age, race, sex, and socioeconomic status.

Results: The prevalence of low or very low food security among those with comorbid depression and a cardiometabolic condition was 34% compared to 13% among those with a cardiometabolic condition only. Findings from multinomial logistic regression models indicated that food insecurity was associated with higher risk of mental-physical comorbidity (OR: 3.6, 95%CI: 2.26-5.76). Respondents reporting poor diet and poor self-reported health had higher odds of comorbid depression and cardiometabolic conditions. Female gender and Hispanic ethnicity were also associated with increased odds of comorbid depression and cardiometabolic conditions.

Conclusion: Food insecurity is associated with depression and cardiometabolic comorbidities and may have implications for disease management. There is increased need for targeted interventions to address food insecurity among high-risk groups.

Gender**Drug Use among Rural Sexual Minorities in the U.S.** Kent Jason Cheng* Kent Jason Cheng Yue Sun Shannon Monnat

Misuse of both prescription and illicit drugs has increased in the U.S. over the past couple of decades and represents a threat to population health and wellbeing. Previous research shows variation by both metropolitan status and sexual identity in the prevalence of misuse of different substances. But how do rurality and sexual identity intersect to influence drug use? There are various reasons to expect that rural sexual minorities would be at greater risk of substance use than their urban or sexual majority peers, including greater social isolation, stigma, and stress and more barriers to health and substance use treatment services for rural sexual minorities. These inequities may lead to higher rates of overdose and other problems stemming from drug use. Using 5-years (2015-2019) of data from the National Survey on Drug Use and Health (N=204,629) we examined interactions between sexual identity and metropolitan status on past-year use/misuse of 11 different prescription and illicit substances among adults ages 18+. We aimed to determine whether odds of past-year use/misuse of these substances were greater for sexual minorities living in rural areas than their rural heterosexual and urban sexual minority peers. By pooling five years of data, we were able to achieve sufficient sample sizes for robust analysis (e.g., rural heterosexual N=38,929, rural gay/lesbian N=633; rural bisexual N=1,831). Net of demographic and socioeconomic controls, sexual minorities were significantly more likely than heterosexuals to report past-year use of cocaine, heroin, hallucinogens, inhalants, and methamphetamine and past-year misuse of prescription opioids, tranquilizers, and sedatives. There were only a couple of significant interactions between sexual identity and metro status: Rural gays/lesbians had significantly greater odds of heroin use and rural bisexuals had significantly greater odds of prescription stimulant use than their heterosexual and urban peers.

Health equity**COVID-19 and health-related social needs among Vietnamese living in the United States**

Milkie Vu* Milkie Vu Nhat-Ha Pham Tien Nguyen

Background: U.S. Vietnamese have lower English proficiency and education as well as higher uninsurance and poverty rates when compared to non-Hispanic Whites or other Asians. These factors make U.S. Vietnamese vulnerable to secondary impacts of COVID-19, yet to date, no study has examined pandemic-related hardships in this population.

Objective: We assessed prevalence and correlates of several health-related social needs (HRSN) experienced by U.S. Vietnamese during COVID-19.

Method: In 2020, we conducted a cross-sectional, nationwide survey with 408 U.S. Vietnamese. Questions inquired experiences of six HRSN since COVID-19 began. Correlates included age, sex, education, duration in the U.S., household size, experience of coronavirus-related anti-Asian racism, and social support. Modified Poisson regressions were conducted to identify correlates of reporting at least one HRSN.

Results: The majority was female (83%), had a Bachelor's degree (85%), and was not born in the U.S. (98%). Over half (54%) reported at least one HRSN since COVID-19 began. Prevalence of needs in descending order was: increased loneliness (38%), food insecurity (25%), transportation needs (11%), visa-related difficulties (9%), deportation-related concerns (8%), and housing insecurity (1%). Experiencing any coronavirus-related anti-Asian racism (aRR=1.23, p=.03) and lower social support (aRR=0.93, p=.04) were significantly associated with reporting at least one HRSN. Reporting at least one HRSN did not vary based on sociodemographic characteristics.

Conclusions: U.S. Vietnamese experienced high prevalence of different HRSN since COVID-19 began. Coronavirus-related racism may be contributing to HRSN. Social support can be a protective factor against HRSN in this population.

Health equity**Attitudes Toward a SARS-CoV-2 Vaccine in BIPOC Populations in Los Angeles County** Corey Jacinto* Corey Jacinto James Huynh Johnny Huynh

Negative attitudes toward the SARS-CoV-2 vaccine pose a barrier to ending the COVID-19 pandemic. Black, Indigenous, People of Color (BIPOC), in particular, are less likely to get vaccinated or plan to get vaccinated, which may worsen racial inequities in COVID-19 morbidity and mortality. Many BIPOC cite distrust of the safety of a vaccine. This distrust is tied to an ongoing legacy of racism and abuse in the American medical system and contributes to the persistent racial gap in vaccination rates. Our study seeks to inform policies to equitably distribute the vaccine and shape public health messaging to assuage distrust among BIPOC. Our research has three aims:

We employ a three-part research design: a survey of 2,000 BIPOC households in Los Angeles County, a multi-arm public health messaging experiment, and 25 qualitative semi-structured interviews. Our research draws on health policy, community health, and economics methods and uses Public Health Critical Race Praxis as a guiding framework.

Findings will inform the formation and implementation of policies and interventions aimed at improving SARS-CoV-2 vaccination rates in BIPOC populations. Specifically, our research can critically inform efforts to address the attitudinal, behavioral, and non-pharmacological factors that contribute to vaccine hesitancy. The research will also provide evidence of the feasibility of a cash payment program meant to incentivize SARS-CoV-2 vaccine uptake, including the cost-effectiveness analysis of this possible financial incentive. The dissemination of our findings will be tailored to a variety of audiences, including but not limited to government officials, community-based organizations, public health researchers, health policymakers, and health care patients.

We are confident that compelling results will be ready to present at the October meeting as the research team plans to finalize statistical and qualitative analyses by September 2021.

Health equity

Guiding principles for more equitable cancer prevention and control research Perla Chebli*
Perla Chebli Prajakta Adsul Jessica Islam Rebecca Williams Stephanie Wheeler Julie Kranick Simona
Kwon Chau Trinh-Shevrin

Background. Cancer disparities remain pervasive despite advances in cancer research. Reversing this pattern will require the prioritization of health equity in cancer control research. Reflecting their commitment to advancing health equity, the Cancer Prevention and Control Research Network (CPCRN) formed a Health Equity Interest Group to identify strategic guiding principles rooted in community-based participatory research and social determinants of health to orient CPCRN activities towards health equity.

Methods. The identification of equity principles followed a multi-phase, participatory approach. First, we conducted a search of relevant health and racial equity frameworks and toolkits in the scholarly and grey literature, identified recurrent themes through a narrative synthesis, and compiled a list of nine preliminary guiding principles. Second, we disseminated an online survey to members of the CPCRN to rate these principles, share case examples from their respective centers, suggest evaluation metrics, and propose alternative principles if applicable. Third, at the CPCRN Annual Meeting, we presented the principles and survey results to participants and engaged in consensus building to refine and finalize the guiding principles.

Results. The 28 survey respondents and 79 Annual Meeting participants provided overall positive endorsement of the nine principles with minor suggestions for modifications. These principles include community engagement and co-creation; addressing systems and structural determinants; and knowledge translation, implementation and dissemination, among others. These principles will help the conceptualization and implementation of cancer control research that advances health equity and reduces cancer burden in disproportionately affected communities. Next steps include developing a toolkit with definitions of the equity principles, case examples for how they can be applied in research and practice, and relevant evaluation tools.

Health equity**COVID-19 related discrimination and mental health among Vietnamese living in the United States** My Nguyen* My Nguyen Elizabeth Walker Chi Nguyen Milkie Vu

Authors: My Hoang Uyen Nguyen, Elizabeth Reisinger Walker, Chi Le Lan Nguyen, Milkie Vu

Background: During the COVID-19 pandemic, anti-Asian xenophobia and violence have spiked with 2,808 racism-related acts reported as of December 2020. Racism likely negatively impacts mental well-being. Existing studies focus mostly on aggregated Asians or Chinese populations, with little attention paid to other Asian subgroups.

Objective: We examined experiences of COVID-19 related racism among U.S. Vietnamese, specifically through assessing 1) individual and neighborhood-level correlates of experiencing racism and 2) association between experiencing racism and mental health.

Methods: We analyzed data from a cross-sectional, nationwide survey with 393 U.S. Vietnamese. Questions inquired about experiencing six Asian-targeted racism-related events since COVID-19 began. Multiple logistic regression models were run to identify correlates of experiencing racism and the association between experiencing racism and mental health.

Results: In the sample, 72% experienced no racism-related event, 20% experienced 1-2 events, and 8% experienced 3+. Experiencing any racism was correlated with lower education, higher English fluency, lower American acculturation, and lower neighborhood cohesion. Experiencing more racism-related events was associated with being male, lower education, lower Vietnamese fluency, higher English fluency, lower American acculturation, and lower neighborhood cohesion. Experiencing any racism or more racism-related events was associated with higher depressive symptoms.

Discussion/Implications: More than a quarter of U.S. Vietnamese encountered COVID-19 racism. Experiencing racism was associated with worse mental health. Findings indicated an urgent need for actions to combat racism, which could include measures to prevent and report hate crimes and support for counseling services and trauma-focused interventions. Asian subgroup experiences should be disaggregated and explored in future studies.

Health equity**The Intersection of Welfare Stigma, State Contexts, and Health** Jessica Lapham* Jessica Lapham Melissa Martinson

Background & Significance:

The stigmatizing nature of the U.S. welfare system is of particular importance not only because it has shown to deter eligible applicants from participating in public assistance programs despite facing economic hardship (Moffit, 1987), but also because stigma is an important fundamental cause of health inequities (Hatzenbuehler, Phelan & Link, 2013; Link & Phelan, 1995). In fact, studies show welfare stigma is linked to several adverse mental health outcomes (e.g. Bassuk et al., 1997; Crocker, Major, & Steele, 1998). Although scholars agree stigma is shaped by individual and contextual dimensions (Link & Phelan, 1995; Pescosolido, 2015), the role of context is often overlooked. Given the heterogeneous nature of US state welfare environments, it may be critical to consider the ways in which state contexts condition the relationship between welfare stigma and health. Using a multilevel lens, this study examines the impact of experienced and perceived welfare stigma on self reported health among female public assistance recipients with children, and considers the moderating effect of uneven state TANF policies, rising income inequality and negative public welfare attitudes.

Data & Methods:

We use public and restricted data from the Fragile Families and Child Wellbeing Study merged with state-level economic and social measures. We employ a series of multilevel logistic regression models to estimate the impact of experienced and perceived welfare stigma on health among mothers receiving public assistance, and test whether different state contexts moderate these associations.

Preliminary Findings:

Our preliminary results suggest experiences and perceptions of welfare stigma are associated with poor health regardless of state contexts, and are especially pronounced among black mothers and those with less than a high school degree. Findings suggest state environments have limited ability to buffer the stigmatizing effects of the US welfare system.

Health equity**Intersectionality in Quantitative Health Disparities Research: A Systematic Review of Challenges and Limitations in Empirical Studies** Lexi Harari* Lexi Harari Chioun Lee

Quantitative health disparities research has increasingly employed intersectionality as a theoretical tool to investigate how social characteristics intersect to generate health inequality. Yet, intersectionality was not designed to quantify, predict, or identify health disparities, and multiple criticisms against its misapplication in health disparities research have been made. There is an emerging need to evaluate the growing body of quantitative research that aims to investigate health disparities through an intersectional lens. We conducted a systematic review from earliest records to January 2020 to (i) describe the limitations when applying intersectionality to quantitative health disparities research, and (ii) identify recommendations to improve the integration of intersectionality with this scholarship. We identified relevant publications with electronic searches in PubMed and CA Web of Science. Eligible studies were English-language publications that used quantitative methods to investigate health disparities among U.S. adults while claiming to adopt an intersectional perspective. Out of 1,279 articles reviewed, 65 were eligible for inclusion. Our review found that, while the value of intersectionality to the study of health disparities is evident, the existing research struggles with meeting intersectionality's fundamental assumptions. Four limitations were found to be widespread: narrowing the measurements of intersectionality, intersectional groups, and health outcomes; placing primacy on the study of certain intersectional groups to the neglect of others; overlooking underlying explanatory mechanisms that contribute to the health disparities experienced by intersectional groups; and lacking life-course perspectives to show how health disparities vary across different life stages. If health equality is to be achieved among diverse groups, future research must be assisted by the collection and examination of data that overcomes these limitations.

Health equity**Characterizing residential mobility and immobility using address data from electronic**

health records: challenges and opportunities Komal Peer* Komal Peer Renee Boynton-Jarrett
Jessica Leibler Jonathan Levy Koen Tieskens Fei Carnes Chanmin Kim William Adams Megan Sandel
Patricia Fabian

There is growing recognition that enriching the conceptualization of residential mobility may advance our understanding of its impact on health and well-being. As sources of health and address data, electronic health record (EHR) systems may support our ability to characterize residential mobility across large study populations in more nuanced ways, but with some challenges in interpreting the available data. In this study, we propose multiple residential mobility metrics that draw from the social, geospatial, and data science fields and identify opportunities and limitations associated with using data derived from the EHR. We conducted descriptive analyses of contextualized residential mobility and immobility, and demographic characteristics using data on 56,050 children seen from 2013-2017 at Boston Medical Center, New England's largest safety-net hospital. EHR address data revealed significant racial/ethnic disparities in access to neighborhood opportunity. Using definitions of neighborhood opportunity derived from the Child Opportunity Index 2.0 (COI), Hispanic (aOR=9.57) and Black (aOR=9.37) children are significantly more likely to experience "low opportunity" moving compared to White children. Among children who moved during our study period, Hispanic (aOR=4.47) and Black (aOR=3.66) children are significantly more likely to move to or within low opportunity neighborhoods. Among non-movers, Hispanic (aOR=9.27) and Black (aOR=7.16) children are more likely to live in low opportunity neighborhoods. Our findings, based in EHR address data, highlight the perpetuation of residence in low opportunity areas among non-White children. Despite the limitation of these data, including issues related to informed presence, our analyses suggest that they could be leveraged to inform interventions in the clinical setting as well as inform local policy solutions to advance health equity and combat structural racism.

Interventions/Programs**Caregiving without Confidence during the COVID-19 Pandemic: A Gap between Needing and Confidence in Finding Health-Promoting Community Resources** Victoria Winslow*

Victoria Winslow Emily M Abramsohn Deborah Burnet Soo Borson MariaDelSol De Ornelas Meryl Davis Elbert Huang Jennifer Makelarski Doriane Miller Aviva Nathan Elaine Waxman Kristen Wroblewski Stacy Tessler Lindau

Recent evidence shows a rise in health-related socioeconomic risks (HRSRs) due to the COVID-19 pandemic. Community resources can mitigate HRSRs, but referrals to these resources are often poorly integrated with clinical care. CommunityRx (CRx), an evidence-based intervention that connects people to wellness and caregiving community resources during a clinical visit, significantly improved middle-aged and older adults' confidence in finding resources to manage their health. However, the relationship between confidence in finding resources and HRSRs is unknown. Preliminary data from 160 caregivers enrolled in two ongoing randomized controlled trials from 7/2020 to 2/2021 were aggregated to examine the relationship between baseline confidence in finding community resources and HRSRs. Prevalence of HRSRs (food insecurity, housing instability, difficulty with utilities or transportation, lack of community support) was stratified by confidence level (completely confident) vs not confident (not at all confident, not very confident, uncertain, or somewhat confident).

Caregivers were caring for an ill child (n=100) or a person with dementia (n=60). Most were female (89%), Black (79%) and in good health (76%). Overall, 41% indicated they were confident in finding community resources. Confidence was lower among caregivers with HRSRs compared to those without any risks (33% vs 64%, $p<0.01$). For individual HRSRs, results were similar - confidence was lower among those with food insecurity (21% vs 47%, $p<0.01$), housing instability (24% vs 58%, $p<0.01$), utility difficulties (15% vs 49%, $p=0.02$), transportation difficulties (25% vs 48%, $p=0.08$), and lack of community support (33% vs 51%, $p=0.05$). Stratified results by study showed similar results.

Caregivers with HRSRs lack confidence in finding needed community resources, especially during the pandemic. Self-efficacy in finding resources is a modifiable, primary outcome of interest in two ongoing CRx randomized controlled trials.

Life-course/developmental

“What do I have to look forward to when I can’t even go to the bathroom in peace?”: School Environments and Developmental Trajectories among Sexual- and Gender-minority Youth (SGMY) in United States High Schools Heather Wurtz* Heather Wurtz Michael Vaughn Benjamin Lane Adrian Guta Morgan M. Philbin

Background: The school environment directly influences health and developmental trajectories for sexual- and gender-minority youth (SGMY). Studies on negative school environments for SGMY have linked interpersonal factors such as peer bullying with long-term negative outcomes (e.g., depression, substance use). However, we lack data on how structural factors within educational institutions intersect with key developmental processes (e.g., identity formation, social connectedness) that are crucial to youth’s long-term health and wellbeing.

Methods: We conducted 67 interviews: 30 SGMY in New York City and 37 community stakeholders across the US who work with SGMY in a variety of social service arenas. We asked about the challenges SGMY face in learning environments and the role of school policies and practices in creating, exacerbating, or addressing these challenges.

Results: Three primary domains surfaced in school-based policies and practices that directly impact SGMY developmental trajectories: 1) marginalization through the built environment (e.g., bathroom policies), 2) bureaucratic procedures that suppress SGMY identities (e.g., parental notification policies), and 3) differential treatment of SGMY by authority figures (e.g., not enforcing supportive policies). Such policies directly impact SGMY ability to stay in school, engage with health-promoting resources, and successfully transition into adulthood.

Conclusion: Findings contribute to emerging research on the relationship between structural policies and population health by considering how school policies affect life-course trajectories for SGMY (e.g., sexual victimization and substance use). Findings also complement literature on social belonging and health by highlighting the role of school dropout and low academic achievement in sexual identity formation. We suggest future policy directions that emphasize the critical role of SGMY-inclusive educational practices.

Mental health/function**Mental Health Challenges among LGBTQ Student-Survivors of Sexual Violence at University of Minnesota, Twin Cities** Courtney Sarkin* Courtney Sarkin

LGBTQ+ post-secondary student-survivors of sexual violence in Minnesota are burdened by depression and anxiety and face long-term mental health consequences that uniquely intersect with their sexual and/or gender identities. LGB students are more likely to be diagnosed with depression and anxiety than their heterosexual peers. Within students at the University of Minnesota, Twin Cities, 44.5% of those who report being victims of sexual assault, and 44.6% of those who report being victims of domestic violence, say they have been diagnosed with depression within their lifetime. LGBTQ+ survivors also face challenges when attempting to access services, including different or additional barriers in accessing legal, medical, and other resources, due to their sexual and/or gender identity, leaving them with little recourse to address their mental health concerns, including depression, in the aftermath of sexual violence. Sexual violence is a major public health problem and a costly burden on our state, with many lifelong health impacts of depression for victim-survivors. Recent audits of many higher education institutions have highlighted the extent of sexual violence on campus of which many LGBTQ+ students are disproportionately at-risk. Drawing on the 2019 AAU Campus Climate Survey results, this research 1) documents mental health challenges for LGBTQ+ student-survivors at the University of Minnesota; 2) examines how challenges in accessing healthcare services contribute to retraumatization and poor mental health; and 3) identifies policy action, including culturally-sensitive mental health training for student health service providers. To work toward ending sexual violence and achieving health equity in higher education institutions, the movement to support survivors must prioritize LGBTQ+ students' mental health.

Mental health/function**How Health Affects Attitudes Toward Suicide in the U.S.** Julene Cooney* Julene Cooney

Suicide rates in the U.S. have been increasing consistently since 1999, and as of 2015 suicide rates have increased for every commonly measured racial/ethnic group in the U.S. Currently the fourth leading cause of death among individuals in the midlife, and with women's suicide rates maximized during this turbulent life stage, it is important to understand the biopsychosocial underpinnings of suicidal ideation that have a high likelihood of leading to lethal action. The purpose of this research project is to determine how attitudes towards suicide differ depending on the self-reported health of the respondent. The General Social Survey (GSS) has asked four questions on attitudes towards suicide intermittently since 1977. These questions are combined to form a reliable index representing attitudes towards suicide. Using logistic and ordinal logistic regression methods, and controlling for marital status, education level, age, survey year, race, sex, and religiosity, I find that since 2000 individuals who rate themselves as having poor health are significantly more likely to consider suicide as a human right. Specifically, respondents answer the question "Do you think a person has the right to end his or her own life if this person has an incurable disease?" in the affirmative more often when they perceive their own health to be poor. The same relationship does not exist before 2000 and is stronger for individuals in the midlife than among individuals younger than 35 or older than 65. Black Americans, who consistently have suicide rates half those of White Americans, see a similar pattern after 2010, with mid-lifers in poor health showing significantly higher rates of suicidal acceptance. This research provides further evidence that mental health screening is an increasingly vital component of physician/patient interactions and highlights the importance of continuity of care.

Mental health/function

COVID-19 related risk and resilience associates with mental health in Mexican American mothers Amy Non* Amy Non Elizabeth Clausing Sandraluz Lara-Cinisomo Kimberly D'Anna Hernandez

Latinx Americans have suffered a disproportionate burden of illness and mortality from the coronavirus pandemic. Latinx, like Black Americans, face elevated risks of coronavirus exposure because their housing and employment prospects are shaped by structural racism/discrimination in ways that restrict options for physical distancing, e.g. crowded housing conditions and essential public-facing jobs. Job loss and reduced hours have also heightened the socioeconomic burden of the pandemic on Latinx people, e.g. by Fall 2020 unemployment rates among Latina women were more than double the pre-pandemic rate. We hypothesize that the stress associated with the pandemic and its socioeconomic consequences are leading to worse mental health outcomes, particularly for Latina mothers. We investigated COVID-related impact (i.e. changes in routines, socioeconomic status, medical care access), anticipatory COVID stigma, fears related to social distancing and of contamination, acculturation, and optimism, in relation to mental health outcomes (depression and anxiety symptoms) among mothers of Mexican descent (mean age 31 years, with children up to 6 years old) living in Southern California (n's range 150-192). Surveys were administered within 5-16 weeks of the March 19th stay at home order in California. Our findings show positive associations between COVID impact, fear, and stigma measures with mental health outcomes. Acculturation was negatively correlated with COVID-related impact, stigma, and fears, but positively correlated with depression, while optimism was inversely associated with anxiety and depression, and buffered some of the depression-related effects of the COVID-related impact. Our findings support the need for increased screenings for early detection of declining mental health among Latina women during the pandemic, and increased research focused on the psychosocial stressors and socioeconomic changes that may be contributing to these effects.

Mental health/function

“We’re more likely to fund armed guards than school counselors”: A qualitative exploration of how school-based policies and practices impact mental health service access for sexual and gender minority youth. Tara McCrimmon* Tara McCrimmon Heather Wurtz Adrian Guta Natalie LaBossier Morgan M Philbin

Background: Sexual and gender minority youth (SGMY) face a significant burden of poor mental health. While research has emphasized the role of interpersonal factors in mental health (e.g., increased risk of bullying in schools, family dynamics), less work has explored the role that policies, particularly school-based policies, play in SGMY access to mental health services.

Methods: We conducted 68 in-depth interviews with 30 SGMY in New York City and 38 community stakeholders (e.g., school counselors, youth service organization staff) across 22 states. Interviews focused on home, school, and work environments, challenges to mental health care access, and the role of state and local policies. Interview transcripts were analyzed with thematic content analysis.

Results: Participants described weak support for mental health services in school settings and a lack of policies tailored to SGMY-specific needs. SGMY described inadequate and unenforced policies, such as anti-bullying, as missed opportunities to link youth to mental health services (*“my principal kept telling me... don’t say anything”*). Stakeholders highlighted a lack of funding for mental health services (*“We’re more likely to fund armed guards than school counselors”*), inadequately trained school staff (*“Let’s just put it on the teachers”*), and parental notification policies that prevent youth from accessing services (*“there’s nothing we can do unless [the dad] signs off”*). The intersection of these factors poses unique barriers for SGMY, especially those who are not out.

Conclusion: Findings highlight the structural barriers to mental health service access for SGMY and respond to calls to consider the role of intersecting policies within institutions such as schools. There is a need to increase financial and resource investment and to advance policies that ensure at-risk SGMY are identified and provided with equitable mental health service access.

Mental health/function**Effectiveness of Mental Health Literacy and Stigma Interventions for Latino/a Adults in the United States: A Systematic Review** Nancy Jacquelyn Perez-Flores* Nancy Jacquelyn Perez-Flores Leopoldo J. Cabassa

Introduction: Despite the remarkable growth of the Latino/as population in the U.S., their mental health care needs are still not being met. Latino/as face persistent mental health care disparities, even after adjusting for education, health insurance, and socioeconomic factors. Mental health stigma and low mental health literacy limit help-seeking and use of services, treatment engagement, and quality of care. While there has been increased attention on mental health stigma and mental health literacy, no systematic literature review currently exists of interventions developed to reduce mental health stigma and increase mental health literacy in the Latino/a community. This review aimed to: (1) examine the methodological rigor of these intervention studies; (2) describe the mental health literacy and stigma interventions developed for Latinos/as in the U.S., and (3) summarize the outcomes of these studies focusing on mental health literacy and stigma outcomes.

Methods: This study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to inform our systematic literature review. This study identified peer-reviewed publications through a systematic search of ten databases. Studies were included if they met the following criteria: (1) published in English or Spanish in a peer-reviewed journal between 2000 and February 2020 and conducted in the U.S.; (2) described a mental health literacy and/or stigma intervention delivered to Latinos/a adults 18 years of age or older; and (4) evaluated the impact of the intervention on mental health literacy and stigma outcomes for Latino/as. The methodological rigor of each study was assessed using an adapted version of the Methodological Quality Rating Scale.

Results: Seven articles met the inclusion criteria for this review. The methodological rigor of the studies were limited. Three articles used a randomized control group design and four articles utilized single group pre/post designs. The majority of studies were small pilot studies with small samples and short follow-up periods of less than a month. The interventions focused on depression and psychosis and incorporated various cultural and linguistic elements to make them relevant, salient, and culturally-appropriate to Latino/as. These interventions showed promising results for improving knowledge of mental disorders and mixed results for reducing stigma towards people with mental illness and mental health treatments.

Conclusion: Findings highlight a significant deficit of mental health literacy and stigma interventions for the Latino/a population. As the Latino/a population continues to grow, future research should continue investigating and developing more evidence-based interventions, particularly addressing mental health stigma. More intensive and prolonged mental health stigma interventions that use multiple media platforms (e.g., radio, television, website, print, and social media) are needed to help reduce mental health care disparities in this population.

Methodological approaches to studying public health

How Valid are Retrospective Childhood Measures in Surveys of Older Adults? Mark Lee*
Mark Lee John Robert Warren Theresa L. Osypuk

Background: Many scientists rely on retrospective measures of childhood circumstances to answer important questions about life course influences on later life health, disability, and mortality. To date, it has been impossible to assess the validity and reliability of these measures by comparing them with a contemporaneous data source. Therefore, it is currently unclear how these retrospective measures may be biased by recall error or to what extent this bias influences our knowledge regarding childhood risk factors for disease.

Methods: We rely on data from Health and Retirement Study (HRS) participants who were linked to their household record in the 1940 U.S. census (N=9,654). The HRS retrospectively measures childhood factors such as mother's and father's education, mother's and father's labor force participation/employment, subjective family finances, and co-residence with a grandparent. We compare (using correlation coefficients, cross tabs, and ANOVA) these retrospective measures to parallel measures in the census record to assess the amount of agreement between data sources.

Preliminary Results: We have compared father's education (categorized as <8th grade, 8th-11th grade, 12th grade or more) in the HRS and census data. For 61% of participants with non-missing data in both records, there is agreement between retrospective and contemporaneous measurements. For 26%, the HRS participant reported higher education for their father than was recorded in the census, which could be explained by the father earning more education after 1940. For 13%, the HRS participant reported less education for their father than was recorded in the census. Nearly identical results were found with mother's education.

Next Steps: We will assess the agreement between other retrospective and contemporaneous measures of childhood circumstances. Next, we will examine whether the validity of retrospective measures differs by age, race, sex, and education. Finally, we will compare the strength of the association between childhood factors and later life health when relying on HRS versus census measurements.

Migration**Preventability and the Paradox: Analyzing the Immigrant Mortality Advantage Under the Fundamental Cause Framework** Elyas Bakhtiari* Elyas Bakhtiari

Certain social conditions have been theorized as “fundamental causes” of health and health inequalities because they structure access to resources that can be used to avoid risk or reduce the consequences of disease once it occurs. Although this theoretical framework has become influential in research on socioeconomic and racial disparities in health and mortality, it has been largely disconnected from research on immigrant population health. This is in part because researchers have repeatedly found an “immigrant paradox” in which migrant populations experience better health than would be expected given their socioeconomic and demographic profiles. This study aims to integrate immigrant health research into the fundamental cause framework. Using linked mortality data from the National Health Interview Survey, I empirically test the presence of a fundamental cause relationship by comparing the foreign-born mortality advantage across conditions that vary in degree of preventability. Results from Cox proportional hazard models suggest the foreign-born mortality advantage is larger for highly-preventable conditions, and the effects of socioeconomic status on immigrant mortality increase with duration of residence. I conclude with a discussion of how fundamental causes can be studied in immigrant populations, and I direct attention to flexible resources and fundamental social conditions—including transnational social ties, racialized legal status, and immigration regimes—that may be unique for immigrant populations.

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

“It’s just something that you have to do:” The Personal Health Investments of the St. Louis School Desegregation Program Sienna Ruiz* Erin Linnenbringer Ellen Hutti Akilah Collins-Anderson Linnea Evans

Background: Interdistrict school desegregation programs were created to mitigate structural racism by busing Black students to better resourced, majority White school districts. Outcomes research typically focuses on academic achievement, leaving the health & well-being of participating students and families largely unexamined. As race-based programs wind down, understanding the health costs & benefits of program participation is essential to inform a new generation of education policies.

Objective: Explore the health costs and benefits of school desegregation program participation.

Methods: We are conducting a pilot study to identify salient themes among caregivers of Black school-aged children enrolled in St. Louis’ Voluntary Interdistrict Choice Corporation (VICC) program. In-depth interviews are conducted via Zoom, followed by survey measures of school climate; racial socialization; and student emotional health & sleep quality.

Results: 23 caregivers (20 female; mean age=39) have enrolled in the study. Qualitative analyses are underway, but several themes have already emerged. Caregivers report significant family adaptations to meet the challenges of participating in VICC (e.g. long commutes, race-based conflicts). Caregivers often framed these adaptations as “normal” or expected in order to provide their child the best opportunities. Thematic analysis reveal health-related issues with respect to normalizing the adaptations: (1) the effects of distance, (2) discontinuity between school & home life, and (3) managing stress related to school & race. Survey data on these topics, as well as child mental health and sleep, will be integrated in the final analyses.

Conclusion: Preliminary results indicate that health investments are central to the family experience of school desegregation. Furthermore, this investment has a significant effect on family life despite being categorized as “normal.” Final analyses will inform future school desegregation and health research.

Place/Communities

Understanding the relationship of immigrant political participation and health in Asian American neighborhoods Shaina Sta. Cruz* Shaina Sta. Cruz R. David Rebanal Kami Yamamoto Irene H. Yen Danielle Coquia

Few studies have examined the potential pathways between racial residential segregation and health status among Asian Americans, despite the fact that Asian Americans are increasingly more residentially segregated. Racial/ethnic minority political participation has been identified as a potential mechanism through which residential segregation affects multiple health outcomes, with most research focused on African Americans. Isolated communities, including residents from immigrant neighborhoods, can participate in collective political participation (e.g., attending protests, joining identity-based coalitions) toward better health and well-being.

Using qualitative methods, we examined civic and political actions of Southeast Asian American residents living in ethnic-segregated neighborhoods in California. Specifically, in summer 2020, we conducted online ethnic-specific focus groups with Asian American residents from three communities with high degrees of Asian American residential segregation. Through an online community mapping exercise, participants discussed their attitudes, perceptions, and structural promoters and barriers to political participation. Focus groups were analyzed using a grounded theory approach. Common themes include systemic and individual-level discrimination, generational differences, and recommendations toward fostering civic engagement.

Findings highlight the importance of examining the role of political participation on health outcomes in segregated communities. The results can inform programmatic investments and policies to mitigate the effects of neighborhood isolation and discrimination that cause racial health disparities. During the presentation, we will facilitate conversation on ways to promote political engagement as well as understand its connection to health promotion. We invite public health professionals, policymakers, and social-minded researchers to share insight into political civic engagement and social justice.

Place/Communities

Evictions, Health, and Race in Memphis, TN Courtnee Melton-Fant* Courtnee Melton-Fant
Austin Harrison Katy Ramsey Mason

Background: Although evictions are a major disruptor of residential stability, their contribution to health disparities remains understudied. Both the threat of eviction and experiencing an actual eviction are associated with adverse physical and mental health outcomes. Communities with higher proportions of Black people have higher rates of eviction filings. Market characteristics alone are insufficient for explaining the hyper-concentration of eviction in neighborhoods of color. Higher eviction rates in Black neighborhoods are a manifestation of structural racism.

Memphis is the fastest growing rental market in the United States, while facing an eviction crisis and rife with persistent racial health disparities. To inform local policy approaches, this study explored the relationship between eviction filings, health outcomes, and neighborhood racial composition in Memphis. Our main research question was:

What is the relationship between neighborhood level eviction filing rates and health outcomes and does the relationship vary based on neighborhood racial composition?

Data and Methods: We combined health data from CDC's 2020 PLACES data, 2019 American Community Survey 5-year estimates, and eviction filings from the Shelby County, TN General Sessions Court. Multivariate regression models were used to examine the relationship between health outcomes and eviction filing rates, while controlling for other relevant neighborhood characteristics. Separate models were run based on neighborhood racial composition.

Results: Diabetes, hypertension, and poor mental health were significantly associated with higher eviction filing rates in majority Black neighborhoods but not in majority white and racially mixed neighborhoods. These findings point to evictions as an important contributor to racial health inequities in Memphis and the importance of race-conscious policy interventions that address the dual crises of housing instability and racial health disparities.

Place/Communities

A scoping review of whole-of-community interventions on six modifiable cancer prevention risk factors in youth: A feedback control systems typology Ann Essay* Ann Essay Chelsey Schlechter Carrie Mershon Alissa Fial Jennie Ellison Richard Rosenkranz David Dzewaltowski

Background: Whole-of-community (WOC) interventions delivered across geospatial areas show promise for improving population health and reducing health inequities for youth cancer prevention. If communities are characterized as a patchwork quilt of microsystems where individuals interact in geographically-bounded places nested within larger dynamic whole systems of influence, a fundamental feedback control systems approach can be used to frame the literature. A basic feedback control system has a sensor to monitor system outcomes, a controller to use this information to make decisions, and an effector to implement actions. The aims of this review were to synthesize the WOC intervention literature on modifiable risk factors in youth for cancer prevention and to develop and apply a typology describing feedback control system functions.

Methods: A search was conducted in five databases for studies published through 2019. Eligible studies included a geospatially-defined WOC intervention; youth 0–18 years; and at least one cancer risk factor outcome of alcohol use, diet, obesity, physical activity, sun exposure, or tobacco use. A typology describing feedback control system functions for WOC interventions was developed, and the typology was used to code the interventions.

Results: A total of 41 interventions were included. Few interventions provided fundamental functions necessary for feedback-driven community system coordination: sensor of system state, controller providing intervention decisions, and effector implementing intervention practices.

Conclusion: WOC interventions can be characterized by feedback control system functions necessary for system coordination. A feedback control system enables a community system to adjust its intervention to meet a desired outcome change. Future WOC intervention efforts should draw on knowledge of how systems operate and test whether adoption of the functions is necessary for population health improvement.

Place/Communities**The effects of neighborhood disadvantage on the risk of dementia among refugees in****Denmark** Min Hee Kim* Min Hee Kim Else Foverskov Trine Frøslev Justin White M. Maria Glymour
Jens Hainmueller Lars Pedersen Henrik Sorensen Rita Hamad

Exposure to disadvantaged neighborhoods throughout the life course is a known risk factor for dementia, perhaps due to reduced opportunities for physical activity, social and intellectual stimulation, and socialization. This may be especially true for refugees, who have few other resources and are particularly vulnerable. Robust estimates from models minimizing confounding issues could inform multilevel interventions for dementia reduction. We leveraged a Danish refugee dispersal policy during 1986-1998 that quasi-randomly dispersed refugees across neighborhoods with varying degrees of a socioeconomic disadvantage as a natural experiment. We examined whether refugees assigned to more disadvantaged neighborhoods had higher rates of dementia in later life. The study included 10,585 adults aged 40 years and older who came to Denmark as refugees during 1986-1998. The exposure, neighborhood disadvantage, was constructed using a composite index derived from Danish population register data. Dementia cases were identified from health registers capturing relevant clinician diagnoses and medications. We applied linear probability models to estimate the association of neighborhood disadvantage on arrival with dementia risk in subsequent decades (Mdn 18.9 years of follow-up observations), adjusting for individual and family characteristics and including fixed effects for municipality and year of arrival. Preliminary results suggest that neighborhood disadvantage was not associated with dementia risk in this cohort (β : -0.001, 95% CI: -0.006, 0.003), and there was no indication of effect modification by gender. A small number of dementia incidence and inclusion of multiple parameters may have precluded the detection of the effect of neighborhood disadvantage. Future studies should examine whether these results are generalizable to other outcomes, non-refugee samples, and other country contexts.

Place/Communities**Motivations for Population Health Engagement among For Profit Hospitals** Berkeley Franz*

Berkeley Franz Cory Cronin Kelly Choyke Vanessa Rodriguez

Introduction: Anchor institutions are large healthcare, educational, or other institutions that provide economic and social benefits to the communities they inhabit through their longstanding presence as major employers and purchasers. Hospitals often fill this role, in addition to their traditional clinical service provision, by investing in population health and partnering with community-based organizations. Most of the research on hospitals as anchor institutions to date, however, has focused on nonprofit hospitals.

Objectives: To better understand if and how for-profit hospitals act as anchor institutions and what incentives exist for this behavior, outside of existing policies that target non-profit hospitals.

Methods: We used an inductive, qualitative approach to understand the incentives for-profit hospitals have to anchor themselves within their communities. We conducted in-depth interviews with 25 hospital leaders, hospital personal, and members of for-profit hospital advocacy organizations and used thematic analysis to generate study findings.

Results: Hospital representatives believe anchor practices strengthen their traditional hospital mission, strengthen bonds with the communities they serve, and are strategic to their business success. At for-profit hospitals, much of the outreach and engagement happens via, or in the least under the consultation of, public relations and marketing, communications, and strategic directors and is explicitly connected to their reputation in their market. At the same time that outreach and engagement addresses health equity, it also helps for-profit hospitals gather reliable data about population health so they may more strategically address the needs of their patient populations. Outreach and engagement fulfill both social and corporate responsibilities.

Conclusion: Anchoring oneself as a hospital is largely about social responsibility; however, sponsorships and engagement in the local community is also good for branding, attracting new patients and partnerships, and fostering a positive perception of the institution. Building on institutional theory, we find that for-profit hospitals operate in ways similar to nonprofit hospitals, despite not having community benefit requirements in exchange for tax exemption. Specific incentives shape this behavior, and as such, for-profit hospitals and their activity as anchor institutions should be measured alongside that of nonprofit hospitals. Policymakers should also explore additional incentives that would further encourage these institutions to participate in and report on population health improvement alongside their nonprofit hospital counterparts.

Policy**Texas Students' Awareness and Attitudes Toward Senate Bill 212: Perceived Impact of Mandated Reporting of Sexual Misconduct** Liesl Nydegger* Liesl Nydegger Erin Benton Sarah Fung Alexandria Cruz

Senate Bill (SB) 212 requires mandatory reporting of sexual misconduct to Title IX. Mandated reporters include faculty, staff, administrators, and students in supervisory roles. There is weak evidence that mandated reporting leads to increased attention on sexual misconduct or benefits survivors; evidence indicates that mandatory reporting laws lead to decreased disclosure of sexual misconduct. The present study conducted 7 virtual focus groups and questionnaires among 26 students at a Texas university between July and September 2020. A majority of participants were cisgender women (73.1%; $M_{age}=20.8$) and undergraduate students (88.5%). Participants reported that they identified as non-Hispanic White (34.6%), LatinX (30.8%), Asian (26.9%), and Black/African-American (15.4%). A majority of participants identified as straight (80.8%), followed by bisexual (19.2%), lesbian/gay (3.8%), or queer/questioning (7.7%; not mutually exclusive). Participants completed questionnaires prior to and after focus groups that inquired about SB 212 knowledge, attitudes, and perceptions regarding future reporting of sexual misconduct. Focus group questions expanded upon survey questions and requested input on a questionnaire to be distributed to a larger sample (in progress). Preliminary results identified that most participants (76.9%) had heard of SB 212 prior to the study. Participants reported more negative (46.2% vs. 34.6%) attitudes toward SB 212. Most participants reported that they were not (26.9%) or less likely (26.9%) to provide information to a mandated reporter. We are currently surveying 2,000 students to gain insight into the impact of SB 212 on disclosure; data collection is expected to be completed May 2021. SB 212 may decrease disclosure of sexual misconduct leading to less support for survivors, and fewer investigations and reporting. The questionnaire will provide increased insight into the impact of SB 212. Future studies will survey multiple Texas universities.

Race/Ethnicity**Online Racial/Ethnic Discrimination and Sleep Quality: An Important Context for Sleep Health Interventions for Young Adults of Color** Vanessa Volpe* Vanessa Volpe Perusi Benson Larsan Czoty Christiana Daniel

Racial/ethnic disparities in morbidity and mortality are catalyzed by racial/ethnic disparities in sleep quality. Early intervention requires understanding threats to young adults' sleep quality. Young adults of color face exposure to racial/ethnic discrimination, a stressor that decreases quality sleep. This has been largely examined by considering individually-experienced in-person discrimination. Despite their frequent online activity, examination of online discrimination is scarce. We examined if college students of color's exposure to online individual and online vicarious racial/ethnic discrimination was associated with sleep quality. Using data from a larger investigation, our sample consists of 154 Black, Latinx, Asian, and Biracial college students (18-22 years). Surveys used established scales to measure sleep quality and online individual and vicarious racial/ethnic discrimination. Multivariate linear regression and simple slopes computation were used, controlling for biological sex (exercise, parental education, and screen time were tested but not retained as covariates). There was a significant interaction of online individual and vicarious discrimination on sleep quality ($B = -.43$, $p = .027$). At low levels of individual discrimination, exposure to more vicarious discrimination was associated with worse sleep quality ($B = .67$, $p = .006$). Results extend prior research on sleep quality and racial/ethnic discrimination to the online context. Vicarious exposure may be particularly harmful for sleep quality when young adults are not already personal victims of racism online, perhaps because negative treatment is less expected, or because vicarious exposure engenders vigilance. As exposure to harmful messages can achieve large-scale impact online, results suggest that eradicating discrimination should be a key part of sleep health promotion intervention efforts to reduce racial/ethnic health disparities.

Race/Ethnicity**La Gente Unida: Advocacy for Latinx Immigrant and Indigenous Health** Mario Alberto Espinoza-Kulick* Mario Alberto Espinoza-Kulick

Anti-immigrant policies, like the public charge rule, undermine the health of Latinx Immigrant and Indigenous communities by contributing to fears of deportation, detention, and family separation. The COVID-19 pandemic has exposed health inequities that have a disparate impact on Black, Indigenous, and people of color communities. Drawing from a decolonial-inspired, mixed-methods study on Latinx Immigrant and Indigenous health and advocacy in California's Central Coast, this project responds to the questions: what health conditions are of most concern for Latinx Immigrants and Indigenous communities? and what tactics and strategies do advocates employ to effectively impact health care and health policy? Findings point to the systemic effects of unequal access and attacks on the health and well-being of Latinx immigrants, including an alarming rate of difficulty in accessing medical services and COVID-19 mortality rates. Other major concerns from participants included fear of immigration enforcement, language barriers, and racial discrimination. Experiencing discrimination was related to higher rates of anxiety. Among Indigenous respondents in the survey, there were significant disparities when it comes to healthcare avoidance, relevant health knowledge, and access to health services. In the face of these disparities and the negative consequences of COVID-19, Latinx Immigrant and Indigenous communities demonstrate a high level of resiliency. Community-based groups advocate to close equity gaps through direct services, like the interpretation of health information in Spanish, Mixteco, and other Indigenous languages. They also address structural drivers of inequity by raising funds for community members that are excluded from assistance programs and organizing for higher wages and better working conditions.

Reproductive health

State abortion policies and maternal death in the US, 2015-2018 Dovile Vilda* Dovile Vilda
Maeve Wallace Clare Daniel Melissa Goldin Evans Charles Stoecker Katherine Theall

Objectives: To examine associations between state-level variation in abortion-restricting policies in 2015 and total maternal mortality (TMM), maternal mortality (MM), and late maternal mortality (LMM) from 2015-2018.

Methods: We derived an abortion policy composite index for each state in the US based on eight state-level abortion-restricting policies. We fit ecological state-level generalized linear Poisson regression models with robust standard errors to estimate 4-year PRM, MM, and LMM rate ratios (RR) and 95% confidence intervals (CI) associated with a one-unit increase in the abortion index, adjusting for state-level covariates.

Results: States with the higher score of abortion policy composite index had a 7% increase in TMM (aRR=1.07, 95% CI=1.01; 1.12) and 12% increase in MM (aRR=1.12, 95% CI=1.04; 1.21) compared with states with lower abortion policy composite index, after adjusting for state-level covariates. Among individual abortion policies, states with mandated waiting periods, gestational age restrictions, and licensed physician requirements had 34%, 29%, and almost two times higher risk of MM, respectively. Licensed physician requirement and restrictions on public funding for abortion were associated with 51% and 29% higher TMM, respectively.

Conclusion: Restricting access to abortion care at the state level may increase the risk for maternal mortality.

Reproductive health**Cesarean delivery among birthing people of minority race/ethnic groups in rural counties**

Mekhala Dissanayake* Mekhala Dissanayake Robert Hummer Whitney Robinson

Background

Current research on mode of delivery in rural U.S. settings includes mostly Non-Hispanic Whites (NHW); outcomes for minority race/ethnicity groups are less known.

Objective

Describe variation in cesarean delivery by race/ethnicity for people residing in rural counties and whether this varies by racial composition of counties.

Methods

We linked North Carolina live birth certificates (2014-2018) with U.S. population data and Rural-Urban Continuum Codes (RUCC). Counties with RUCC>3 were considered rural. We calculated maternal race/ethnicity-stratified (NHW; Non-Hispanic Black (NHB); Hispanic) percentages of cesarean delivery. We used mixed-effects logistic regression to determine the association between county percentage (%) of NHW residents in maternal county of residence and cesarean delivery, stratified by maternal race/ethnicity. Models were adjusted for adequacy of prenatal care, obesity, maternal age >35 years, gestational hypertension, gestational diabetes, nulliparity, and prior cesarean delivery.

Results

We included 115,577 births in 54 rural counties. The county percentage of NHW residents ranged from 26% to 95% (median 63%). Percentage of live birth delivered by cesarean was 31.1% in NHWs, 34.0% in NHBs, and 25.1% in Hispanics. Greater % NHW was associated with increased cesarean delivery for both NHB and Hispanic mothers in rural counties (Hispanic OR: 1.39, 95% CI: 0.94, 2.05; NHB OR: 1.51, 95% CI: 1.07, 2.14) and decreased cesarean delivery for NHW mothers (OR: 0.92, 95% CI: 0.74, 1.14). Covariate adjustment strengthened the association in Hispanics (OR: 1.63, 95% CI: 1.01, 2.62) but slightly attenuated it in NHBs (OR: 1.42, 95% CI: 0.93, 2.17) and rendered it null in NHWs (OR: 1.01, 95% CI: 0.82, 1.25).

Discussion

Cesarean delivery among minority race/ethnicity people increased with the % NHW in maternal county of residence in rural counties. This may reflect increased barriers to care or institutional discrimination in majority NHW rural areas.

Reproductive Health**Maternal Weight, Perceptions of Care, and Satisfaction with the Childbirth Experience**

Karina Shreffler* Karina Shreffler Lucia Ciciolla Julie Croff Jameca Price Karen Gold

The childbirth experience, including women's satisfaction about the experience, has long-term implications for women's health and well-being and the early mother-infant relationship. There have been recent calls for investigation into factors associated with negative birth experiences as a way to improve caregiving. To date, most prior research has examined elements of care provision including emotional support, individual psychological factors such as self-efficacy and personal control, or the impact of birth complications such as emergency cesarean section deliveries. Prior studies have found that women with higher BMIs report greater fear of childbirth and perceptions of provider bias, suggesting that BMI should be associated with less satisfaction about the birth experience. Using a prospective, low-income clinic cohort of 124 women recruited during their first prenatal visit and multiple linear regression, we examined how maternal obesity as measured through self-reported body mass index (BMI) was associated with satisfaction about the birth experience. Controlling for sociodemographic factors, we found that reporting higher BMI scores was associated with lower satisfaction about the birth experience, though this was mediated by the experience of an emergency cesarean section delivery. We also found a moderating impact of satisfaction with provider compassion and understanding; women with higher BMI values who also felt less satisfied with provider compassion reported the lowest levels of satisfaction with the birth experience. Positive birth experiences are an important goal of obstetric care, and the findings of this study suggest that women with higher BMI may require additional emotional support and individualized care during childbirth.

Reproductive health**Reproductive Coercion and Violence Amongst Women Living in Appalachia** Anna Church*

Anna Church Cynthia Colen Danielle Bessett Alison Norris

The overarching objective of this study is to explore Appalachian women's experiences with reproductive coercion and obstetric violence, while paying explicit attention to the particular structural conditions, constraints, and vulnerabilities of women living in this region and how these may exacerbate and/or facilitate these experiences. We fill two gaps in the existing literature on rural women's reproductive health. Firstly, few to no studies that we know of have examined mistreatment, coercion, or violence during reproductive and obstetric care among women living in rural areas. Secondly, we contribute to a burgeoning literature which shifts from a limited focus on victims and victimizers, or interpersonal components of individual-level interactions between patients and providers, to the acknowledgement of ubiquitous socialization of men and women into naturalized, and thus often invisible, forms of violence and power dynamics between groups. We contextualize individual experiences against the backdrop of an economically depressed region with low access to healthcare. With rural women experiencing a higher probability of severe maternal morbidity and mortality compared to urban women, the implications for poor treatment and violence during reproductive care in this context are critical. In-depth interviews (n=45, currently) were conducted with women living in the Ohio region of Appalachia. The research team used a community-based participatory research (CBPR) approach to identify and engage key community partners to assist in accurately addressing the needs of the population and to help build necessary trust amongst the community. Results indicate that Appalachian women have very few places where they can access reproductive care and that they often have poor experiences. Women cite dismissive attitudes from providers, having interventions during childbirth that they did not want nor understand the reasoning behind, and long wait times at hospitals and clinics.

Reproductive health**A Polycystic Ovary Syndrome Diagnosis is a Marker of Socioeconomic Advantage** Ky'Era Actkins* Ky'Era Actkins Melinda Aldrich Lea Davis

Polycystic ovary syndrome (PCOS) is a public health burden that costs over \$5.3 billion to treat annually due to dysregulation in endocrine function. The heterogeneous symptomology and the arduous two-year or longer diagnosis process are two important reasons why approximately 75% of women with PCOS remain undiagnosed. However, little is known about how socioeconomic status (SES) contributes to PCOS and its clinical diagnosis process. Therefore, we aimed to understand how social determinants of health, including poverty, can affect PCOS diagnosis. We tested the association between the area deprivation index (ADI) and PCOS case status. The ADI is a neighborhood deprivation measurement that captures the socioeconomic position of a community. We fitted multivariable regression models with PCOS diagnosis as the outcome and ADI as the predictor variable. We adjusted for median age, race, and body mass index and included 1,297 PCOS cases and 21,039 controls. PCOS patients had significantly lower ADI (OR=0.20, 95%CI = 0.12-0.33, $p=1.03e-09$), indicating higher SES. Patients in the highest ADI quartile had the lowest rate of PCOS diagnosis (OR=0.58, 95%CI=0.49-0.69, $p=4.86e-10$), showing that as the ADI increased, the diagnosis rate for PCOS decreased. This was also observed among White females in the top two quartiles, who ranged from having 28% to 44% lower odds of being diagnosed. However, Black females in the top two quartiles had 48% to 42% lower odds of receiving a PCOS diagnosis. This may be due, in part, to the baseline ADI of our sample population, where Black females had statistically higher deprivation indices compared to White females irrespective of their PCOS status ($p<0.001$). PCOS has a diagnostic odyssey that can be a barrier to individuals with low SES. These inequities could be an unrecognized cause in the high rate of undiagnosed women. Further investigations are needed to establish the role of social determinants of health on PCOS and its outcomes.

Sexual risk behaviors**The relationship between maternal support, sexual activity and sexual risk behavior among adolescents from different race/ethnic groups in the National Longitudinal Study of Adolescent to Adult Health (AddHealth)** Meng Xiong* Meng Xiong Amanda Simanek

Maternal support is associated with decreased sexual risk behaviors among adolescents, but the extent to which associations vary across race/ethnic groups is not clear.

We used data on 6,504 adolescents (grade 7-12) from AddHealth (Wave I) to examine the association between maternal support and sexual activity/condom use during most recent sexual activity. Maternal support was assessed as closeness to mother, extent mother is warm and loving, communication satisfaction with mother, and overall relationship with mother. Factors for which maternal support was rated high were summed and a total score was dichotomized as high versus low maternal support. Individuals were categorized as sexually active versus not and as having used condoms during most recent sexual activity versus not. Logistic regression was used to estimate odds ratios and 95% confidence intervals adjusting for adolescent's race/ethnicity (non-Hispanic White (NHW), non-Hispanic Black (NHB), Hispanic or Other), as well as age, gender, mother's education, receipt of public assistance, and household composition. Models were also stratified by race/ethnicity.

A total of 86.1% reported high maternal support (86.6%, 86.9%, 84.2% and 80.1% among those who self-reported as NHW, NHB, Hispanic or Other, respectively). A total of 60.0% reported no sexual activity (64.8%, 18.1%, 11.5% and 5.6% among those who self-reported as NHW, NHB, Hispanic, or Other, respectively). Among those sexually active (n=2,149), 61.2%, 53.4%, 34.4%, 9.9% and 2.4% reported use of protection in total and among NHW, NHB, Hispanic or Other race/ethnic groups, respectively. High maternal support was associated with 1.7 times higher odds (95% CI: 1.49-2.08) of no sexual activity and 1.3 times higher odds (95% CI: 1.01-1.65) of condom use, respectively. Odds of no sexual activity were 2.41 (95% CI: 1.21, 4.22), 2.11 (95% CI: 1.46, 3.01), and 1.97 (95% CI: 1.58, 2.54) times higher among Other, NHB and NHW race/ethnic groups, respectively. Odds of condom use was higher across all race/ethnic groups (greatest among those of Other race/ethnicity; OR 1.91, 95% CI: 0.49, 7.47), but associations were not statistically significant.

Our findings suggest maternal support is associated with sexual activity and condom use in adolescents, but associations vary across race/ethnic groups.

Social Determinants of Health (SDOH)

“SHARE-the-Wealth”: Reimagining Medicare Disproportionate Share Hospitals to Improve Community Financial and Physical Health Lolita Jones* Lolita Jones

The Medicare disproportionate share hospital payment adjustment was enacted by Section 9105 of the Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1985. A Medicare disproportionate share hospital (DSH) treats an excessive number of low-income inpatients as compared to their total inpatient volume. These hospitals receive the DSH payments on an interim basis throughout their fiscal year, via an add-on payment to their Medicare-Severity Diagnosis Related Groups (MS-DRG) payments. The payments are made on a claim-by-claim basis, but they are reconciled after the close of the fiscal year when the hospitals file their Medicare cost reports.

Low-income status is one example of a social determinant of health (SDOH) – a non-medical factor that influences health outcomes. A person’s income can impact their health based on their ability to afford things like healthy foods, health care, and medication. For 2020 – 2029, the U.S. Department of Health and Human Services (HHS) has set the following Healthy People 2030 goal: Help people to earn steady incomes that allow them to meet their health needs.

SDOH Screening: Hospitals designated as Medicare DSH hospitals should be required to use CMS’ Accountable Health Communities (AHC) Health-Related Social Needs (HRSN) Screening Tool. Currently, CMS only requires that the 32 AHCs use this 26-question tool, however, this tool contains the type of information that should be collected by Medicare DSH hospitals because they could use the data to better assess the needs of their patients who are financially challenged. The following domains are addressed in the HRSN Screening Tool: Disabilities; Education; Employment; Family and Community Support; Financial Strain; Food Insecurity; Housing Instability; Interpersonal Safety; Mental Health; Physical Activity; Substance Use; Transportation Problems; Utility Help Needs.

SDOH Coding: Hospitals designated as Medicare DSH should be required to abstract, code, and report the International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) SDOH codes found in categories Z55 – Z65 (Persons with potential health hazards related to socioeconomic and psychosocial circumstances). Currently, CMS doesn’t require any health care provider to report Z codes, however, there are several Z codes specifically related to economic stability: Z59.5 (Extreme poverty); Z59.6 (Low income); Z59.7 (Insufficient social insurance and welfare support).⁴ Medicare DSH claims data containing Z codes would facilitate hospitals’ and CMS analysis of patient SDOH volumes, case mixes, and trends.

Hospital Employee Ladder Program (HELP): Hospitals designated as Medicare DSH should be required to implement an internal career ladder program specifically for positions that pay low wages and/or lack professional advancement (e.g., Security, Housekeeping, Food Service, and Unit Clerks). It is imperative that Medicare DSH hospitals do not create and/or increase SDOH for their own employees. The HELP should offer the employees who are paid low wages a formal career advancement action plan that includes: 100% tuition assistance for formal education/training OR in-house training programs developed and presented by qualified professionals.

Hospital Employee Ladder Program (HELP) Data Repository: CMS should create a web-based portal for Medicare DSH hospitals to report specific data about their Hospital Employee Ladder Program (HELP). The data should be reported on a quarterly basis to show the hospital’s

commitment to elevate their employees who are paid low wages. Examples of data elements include: reporting period; number of employees who started training per reporting period; number of employees who completed training per reporting period; employee job titles; job-position pay ranges.

Structural factors**Assessing COVID-19 Mortality and Social Vulnerability in the United States** Gabriel

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Background: While all persons have experienced adverse effects related to the COVID-19 pandemic, the burden has not been shared equally among all societal groups in the United States. Individual-level data has demonstrated that racial/ethnic minorities experience mortality rates higher than that of white Americans. These differences are likely not explained by differences in biological factors but rather differences in the distribution of exposure and mortality risk factors due to various systemic inequities in environmental and living conditions experienced by these communities. Our aim is to examine county-level COVID-19 mortality and county-level social vulnerability factors.

Methods: We obtained county-level COVID-19 mortality data from the Johns Hopkins Coronavirus Resource Center up to December 25th of 2020. Social vulnerability was assessed using the Centers for Disease Control and Prevention's (CDC) 2018 Social Vulnerability Index (SVI). SVI is a validated measure of infrastructural and environmental living conditions that assess a community's ability to recover from natural disasters. The burden of COVID-19 mortality was determined by calculating the county-specific case fatality ratio $CFR = \frac{\text{Number of deaths from disease}}{\text{Number of confirmed cases of disease}} \times 100$. ArcGIS 10.7.1 was used to map and examine the relationship between SVI and CFR. Counties were categorized based on CDC-designated cutoff SVI levels: Low, Low to Moderate, Moderate to High, or High. The average CFR was calculated within each SVI level. ANOVA tests were computed to determine if differences in CFR were significant.

Results: This analysis included 3,139 counties in all 50 states. Average CFR increased significantly per each level of SVI ($p < .0001$). For counties with Low SVI, CFR was approximately 1.3 and increased to 1.6 for counties with Low to Moderate SVI. For counties with Moderate to High SVI, the CFR was 1.8 and increased to 2.1 for counties in the highest SVI level.

Conclusion: This analysis adds to the evidence base demonstrating that COVID-19 mortality disparities are likely driven by structural factors that are modifiable by governmental intervention. Future work should aim to target high-risk communities and improve community infrastructure to reduce vulnerability to future public health crises.