

Office of Research

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Publication Highlights

INJURY AND VIOLENCE PREVENTION CENTER



The Effect of the "Safety in Dementia" Online Tool to Assist Decision Making for Caregivers of Persons With Dementia and Access to Firearms : A Randomized Trial

Betz, Marian E.; Portz, Jennifer; Knoepke, Christopher; Ranney, Megan L.; Fischer, Stacy M.; Peterson, Ryan A.; Johnson, Rachel L.; Omeragic, Faris; Castaneda, Mirella; Greenway, Emily; Matlock, Daniel

Annals of Internal Medicine

ABSTRACT:

Background: Caregivers face challenges (including competing desires to prevent injury, respect autonomy, and avoid conflict) when addressing firearm access by community-dwelling persons with Alzheimer disease and related dementias (ADRD).

Objective: To test the effect of the online Safety in Dementia (SiD) decision aid on caregivers' decision making about firearm access for people with ADRD.

Design: Prospective 2-group randomized trial with longitudinal follow-up. (ClinicalTrials.gov: [NCT05173922](https://clinicaltrials.gov/ct2/show/study/NCT05173922)).

Setting: United States.

Participants: English- or Spanish-speaking caregivers (aged ≥ 18 years) of community-dwelling adults with ADRD and firearm access.

Intervention: SiD versus a web-based information control.

Measurements: The primary outcome was preparation for decision making about firearm access. The secondary outcome at follow-up was self-reported action to reduce access.

Results: Among 500 participants enrolled between June 2022 and February 2024, the mean age was 47 years, 69% identified as female, half were the adult child or stepchild of the person with ADRD, and 99% chose study participation in English. Participant characteristics were similar by study group. For the primary outcome, SiD significantly increased preparation for decision making versus the control (69.8 vs. 64.8 out of 100; mean difference, 4.80 [95% CI, 0.53 to 9.07]; $P = 0.024$). There was no significant effect on actions to reduce firearm access at 2 weeks or 2 months.

Limitation: The results may not be generalizable to non-English-speaking populations.

Conclusion: The online SiD decision aid increased preparation for decision making about firearm access in this sample of ADRD caregivers in the United States. Use of such resources in clinical or community settings may support caregivers and people with ADRD in avoiding firearm injury or death.

Maternal Allergy-Preventive Diet Index, Offspring Infant Diet Diversity, and Childhood Allergic Diseases

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Allergy

Abstract

Background: Studies of childhood diet diversity and allergic disease have not examined additional associations with an offspring allergy-linked maternal diet index during pregnancy. We studied both associations in a pre-birth cohort.

Methods: Offspring allergic disease diagnoses were obtained from electronic medical records. Maternal and infant diet were self-reported. Adjusted parametric Weibull time-to-event models assessed associations between maternal diet index, infant diet diversity and time to development of allergic rhinitis, atopic dermatitis, asthma, wheeze, IgE-mediated food allergy, and a combined outcome of any allergic disease except for wheeze.

Results: Infant diet diversity at 1 year was associated with the risk of the combined outcome between 1 and 4 years of age ($p = .002$). While both maternal diet index and infant diet diversity at 1 year were associated with the risk of the combined outcome between 1 and 4 years of age (both $p < .05$), infant diet diversity at 1 year did not modify the association between maternal diet index and the risk of the combined outcome between 1 and 4 years of age ($p = .5$). The group with the lowest risk of the combined allergy outcome had higher maternal diet index and higher infant diet diversity.

Conclusions: The novel finding that both maternal diet index during pregnancy and infant diet diversity at 12 months are associated with the risk of a combined allergic disease outcome points to two targets for preventive interventions: maternal diet index scores during pregnancy and offspring diet diversity during infancy.

CENTERS FOR AMERICAN INDIAN AND ALASKA NATIVE HEALTH

COVID-19 Pandemic Coping, Social Support, and Emotional Health in American Indian and Alaska Native Peoples

Haskins, Cole; Noonan, Carolyn; Collier, Ann; Maclehose, Richard; Buchwald, Dedra; Manson, Spero M.
JAMA Network Open

Abstract

Importance: The COVID-19 pandemic has placed a burden on the health of many people, including significant disparities in American Indian and Alaska Native communities.

Objective: This study examines the associations between coping behaviors, social support, and emotional health among American Indian and Alaska Native peoples during the COVID-19 pandemic.

Design, Setting, and Participants: This cross-sectional study included survey data collected from November 2021 to May 2022 from American Indian and Alaska Native adults aged 18 years or older without dementia or other serious cognitive impairments who were seen at 6 urban health organizations primarily in urban settings (in New Mexico, Alaska, Colorado, Minnesota, Utah, and Kansas) in the year prior to the survey.

Exposures: Exposures of interest included avoidant and direct problem-solving coping behaviors and functional and emotional social support.

Main Outcome and Measures: The study outcome was self-reported change in emotional health since COVID-19 pandemic onset. Poisson regression was used to model adjusted multivariate associations. Data were weighted to account for age, nonresponse, and disproportionate representation by clinic population.

Results: A total of 1164 participants were included in the analysis, with a mean (SD) age of 42.5 (13.4) years; 830 (61%, weighted sample percentage) were female. Since COVID-19 pandemic onset, 465 patients (39% weighted) reported worsened emotional health. Problem-solving coping mean (SD) utilization score was 2.5 (0.5), avoidant coping mean (SD) utilization score was 2.3 (0.5), mean (SD) functional social support score was 11.4 (2.9), and 219 participants (18% weighted) reported that emotional support was always available. Using problem-solving coping skills was associated with better emotional health (adjusted prevalence ratio [APR], 0.66 [95% CI, 0.54-0.81] for highest vs lowest tertile), as was always (vs never or rarely) getting emotional support (APR, 0.40; 95% CI, 0.30-0.55) and having more functional support (APR, 0.90 [95% CI, 0.87-0.92] per 1-unit increase in functional social support). In examination of psychological resilience potentially modifying primary exposure associations, no interactions were statistically significant.

Conclusions and Relevance: In this cross-sectional study of urban American Indian and Alaska Native peoples, problem-solving coping skills and more social support were associated with better emotional health during the COVID-19 pandemic. These findings can be used to identify strengths-based approaches to support community emotional health during social upheavals.

DEPARTMENT OF EPIDEMIOLOGY

Enhancing Methodological Approaches for Studying Health Effects of High-Concentration THC Products

Li, Tianjing; Wang, George Sam; Bero, Lisa; Brooks-Russell, Ashley; Tung, Gregory; Samet, Jonathan M.
American Journal of Public Health

Abstract

For public health protection, informed decision-making relies on having a robust foundation of evidence concerning risks and their prevention. Application of an evidence-based framework depends on the availability of pertinent, scientifically sound data generated by well-directed and valid research endeavors. In this essay, we address the current state of research in humans and the evidential base concerning high-concentration delta-9-tetrahydrocannabinol (delta-9-THC) products, which are readily available in the United States. Furthermore, we explore the intricate challenges faced in carrying out research on these products, which reflect the full range of study design issues: measurement of exposure and outcomes, confounding, selection bias, and the generalizability of findings. We offer recommendations to guide future research toward providing more informative evidence. By following these recommendations, researchers and funders on this emerging topic could move toward generating the valid and comprehensive evidence needed to effectively inform public health initiatives and guide policy decisions regarding high-concentration delta-9-THC products and their use. The urgency of generating such evidence cannot be overstated, given the widespread legalization and increasing availability and use of these products.

COLORADO STATE UNIVERSITY

Greening Urban Areas in Line With Population Density and Ecological Zone Can Reduce Premature Mortality

Garber, Michael D.; Benmarhnia, Tarik; Zhou, Weiqi; Mudu, Pierpaolo; Rojas-Rueda, David
Communications Earth & Environment

Abstract

Urban green space and urban compactness are each important principles for designing healthy, climate-resilient cities. The principles can co-exist, but greening may come at density's expense if not considered deliberately. Existing studies estimating health impacts of greening scenarios have not considered what level of greenness is attainable for different population densities. Here, using the square kilometer as the unit of analysis, we estimate non-accidental mortality that could be prevented among adults older than 30 by greening that small area to a level of greenness assumed to be attainable based on its broader urban area (N = 15,917 globally), population density, and ecological zone. Results suggest a large potential for urban greening even in the most population-dense parts of cities such that on average 54 deaths per 100,000 could be prevented per year in those areas. That estimate may be about 25% higher or lower due to uncertainty in the underlying model.

Novel Method for Measuring Ambient Heat Exposure-Acute Healthcare Utilization Associations Within a Safety Net: A Retrospective, Longitudinal Study

Gillespie, Elizabeth; Steiner, Abigail; Durfee, Josh; Scott, Kenneth; Stein, Amy; Davidson, Arthur J.
Journal of General Internal Medicine

Abstract

Background: Extreme and inequitable heat exposures cause weather-related deaths. Associations between maximum daily temperature and individual-level healthcare utilization have been inadequately characterized.

Objective: To evaluate and compare demographic and clinical associations for an individual's healthcare utilization between high- and low-temperature periods.

Design: Retrospective, 5-year longitudinal study of acute care utilization comparing high-temperature periods (HHP) and low-temperature periods (LHP) defined by local maximum daily temperature. Using duration of observation, cases served as their own controls. Temperature-dependent utilization was reported as unadjusted incident rate ratio (IRR) using Poisson regression and log-transformed variable coefficients. IRRs were adjusted (aIRR) for demographic characteristics, heat-sensitive conditions/diagnoses, and neighborhood heat vulnerability score; false discovery rate p-values were adjusted for multiple comparisons.

Subjects: Patients aged ≥ 4 years visiting Denver Health between 4/10/2016 and 12/31/2020, with ≥ 2 visits over ≥ 365 days.

Main Measures: Comparison of an individual's acute care visit rates in HHP versus LHP, stratified by demographic characteristics and heat-sensitive clinical conditions.

Key Results: While acute care utilization occurred at similar or higher rates during LHP compared with HHP, certain groups (i.e., Native Americans and those with congestive heart failure, liver failure, and/or alcohol use) had higher rates of utilization during HHP. Significant associations existed for acute care utilization by age, sex, racial and ethnic groupings, clinical characteristics, and neighborhood heat vulnerability. Adjusting for demographic and environmental covariates, individuals with any heat-sensitive clinical condition had higher HHP vs LHP utilization compared to those without (aIRR = 1.93).

Conclusions: Significant heat-related utilization occurred among individuals with heat-sensitive clinical conditions compared with those without. Demographic characteristics (e.g., older) and specific clinical conditions (e.g., liver failure) demonstrated higher utilization. In real-time, chronic disease management programs could proactively identify at-risk individuals for interventions which reduce heat-related morbidity and healthcare utilization.