



PREVENTION
POLICY & PRACTICE GROUP



The Green Prescription

Desiree Backman, DrPH, MS, RD
Chief, Prevention Policy & Practice Group
UC Davis Center for Healthcare Policy & Research
drbackman@ucdavis.edu

Neal Kohatsu, MD, MPH, FACPM
Chief Health Strategist, Prevention Policy & Practice Group
UC Davis Center for Healthcare Policy & Research
ndkohatsu@ucdavis.edu

February 2022

UC DAVIS
UNIVERSITY OF CALIFORNIA



Overview

- Background
- Greening and health
- Case study
- Discussion



Financial Support



Background



Greening and Health

- Physical activity
- Overweight/obesity
- Mental health
- Birth weight
- Cardiovascular outcomes
- Mortality
- Inequalities



Observational Studies



Neighborhood Greenness and Chronic Health Conditions in Medicare Beneficiaries

- **Objective:** To examine the relationship between greenness at the census block level and chronic health conditions, adjusting for: neighborhood median household income, age, gender, race/ethnicity
- **Study Population:** 249,405 Medicare beneficiaries in Miami-Dade County
- **Variables:** 27 chronic disease conditions, 12 obesity-related chronic conditions, and 3 individual diagnoses (diabetes, HTN, hyperlipidemia); satellite imagery to determine a standardized measure of greenness
- **Results:** Higher levels of greenness were associated with fewer total chronic conditions and lower rates of cardiometabolic conditions
- **Conclusions:** The findings are consistent with other studies showing greening associated with lower BMI and cardiovascular disease risk



Exposure to Greenness and Mortality in a Nationwide Prospective Cohort Study of Women

- **Objective:** To examine the prospective association between greenness and mortality in the Nurses' Health Study cohort
- **Methods:** Greening for each participant's address was determined with satellite imagery; 108,630 women were followed; 8,604 deaths were observed (2000-2008)
- **Results:** After adjusting for age, race/ethnicity, smoking, and individual- and area-level SES, women in the highest greening quintile had a 12% lower rate of all-cause, nonaccidental mortality than those in the lowest quintile
- **Conclusions:** Higher levels of greening were prospectively associated with decreased mortality

Randomized Controlled Trials



Effect of Urban Greening on Mental Health: A Cluster Randomized Trial

- **Objective:** To evaluate whether interventions to green vacant urban land can improve self-reported mental health
- **Intervention:** (1) **Greening:** removed trash; graded land; planted grass and trees; low, wood perimeter fence; (2) **Trash Clean Up:** removed trash; limited grass mowing
- **Control:** No intervention
- **Results:** Greening (but not Trash Clean Up) was associated with a decrease in participants feeling depressed
- **Conclusions:** Remediation of vacant lots may help to reduce mental health concerns in urban environments

A Greening Intervention



Before



During



After

B Greening Intervention



Before



During



After

A decorative graphic on the left side of the slide, consisting of a green arrow pointing right, with a white outline and a blue shadow effect.

Effect of Urban Greening on Violence, Crime, and Fear

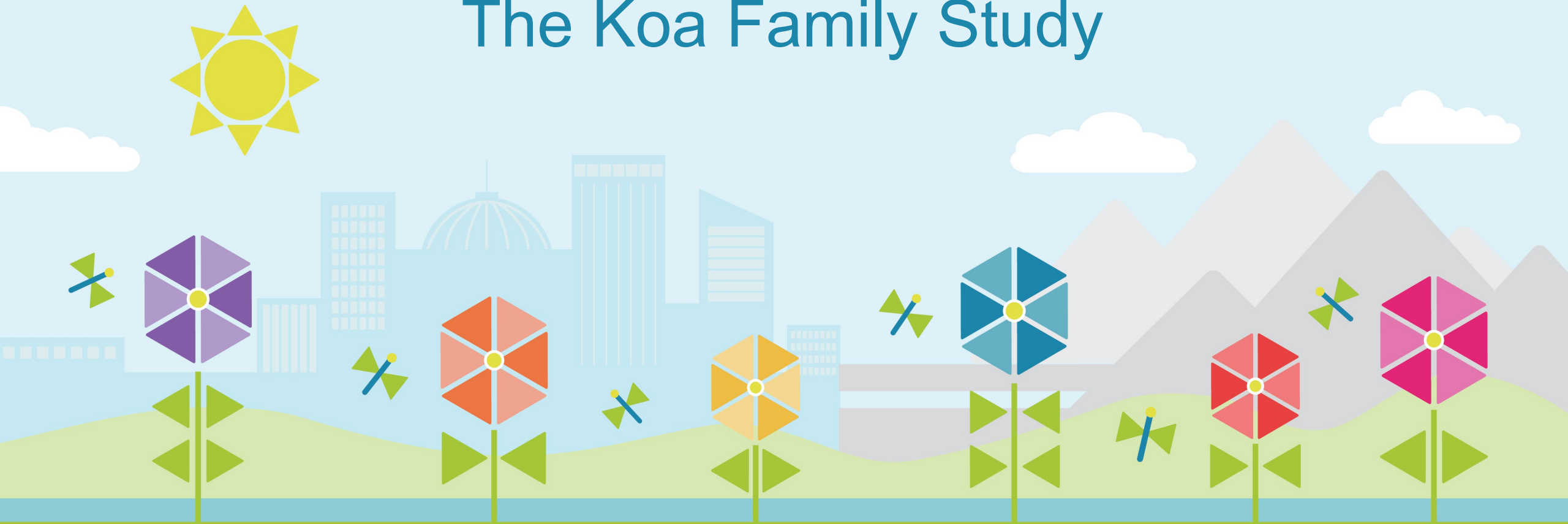
- **Objective:** To compare the effects of urban greening and clean-up of blighted vacant lots on violence, crime, and perceptions of fear and safety using a cluster randomized trial
- **Intervention:** (1) Cleaning and greening of vacant lots (trash removal; grass planting; tree planting to create mini-parks; low wooden fencing); (2) Control—no intervention
- **Results:** The greening intervention participants experienced a reduced perception of crime/violence and an increase in perceived safety; Police-reported outcomes of all crimes, gun assaults, burglary and nuisances were significantly reduced, compared with control participants
- **Conclusions:** Urban cleaning and greening of blighted, vacant lots was associated with reductions in fear, overall crime rate, and violence

Discussion Question:

What are your reflections on the *greening and health* literature?



Case Study: The Koa Family Study



A decorative graphic consisting of a green arrow pointing right, with a white outline, set against a blue background.

Koa Family Study

- **Study Aim:** Determine the impact of Koa Family interventions on reducing overweight/obesity and improving related behavioral and health indicators among overweight or obese women with low income in the Sacramento region
- **Design:** Randomized Controlled Trial
- **Measures:** Body Mass Index, diet, physical activity, quality of life, cost effectiveness

Approach

- Build micro-communities of wholehearted living
- Nutrition, physical activity, resilience, growth mindset, relationships, sleep, coping, empowerment, community transformation
- Use social media to create authentic connection
- Plant and steward trees





Major Findings

- The Koa Family Program resulted in an 8-pound weight loss at Week 18 and Week 25
- Improvements in diet, physical activity, and Stages of Change
- The intervention group showed more favorable changes than the control group for nearly every variable

Implications for Research and Practice

- Plant
- Grow
- Sustain
- Explore



Connect with Health

- Local health departments
- Foundations focused on health
- Community clinics
- Hospital community benefit managers
- Social determinants of health organizations (e.g., housing advocacy)



Discussion

