

Throughout the State and Across the Life Course: Studies of Health and Aging in Wisconsin

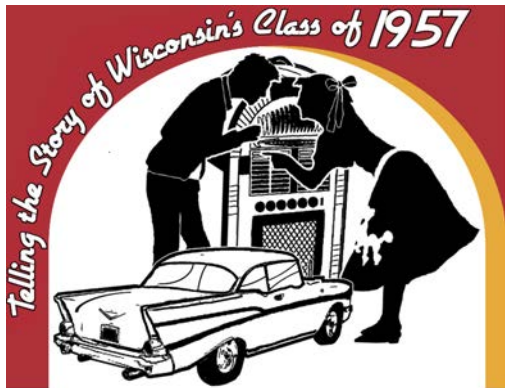
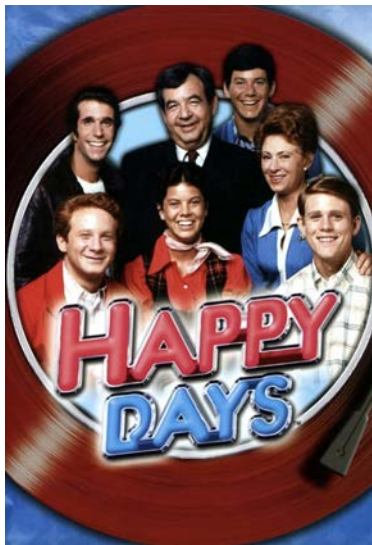
Michal Engelman
Institute on Aging Colloquium
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Wisconsin: A Tale of Two Surveys



The WLS Cohort



The 1957 Graduates



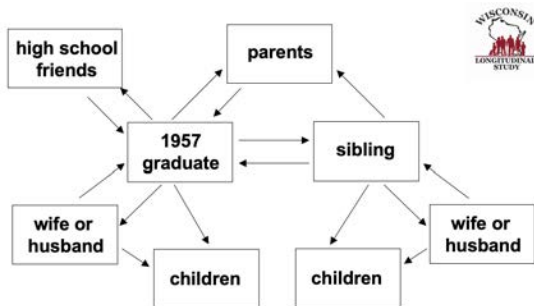
Longitudinal Follow Up

Survey waves: 1957, 1964 (parents), 1975, 1977 (siblings), 1992-3 (grads + siblings), 2004 (grads + spouses), 2011 (grads + siblings), & currently (2020-23, 2023-28).



Sample: 10,317 graduates, randomly selected 9,571 siblings

Unique Features



- Longest running cohort study in the United States
- Committed Participants: 80-90% respond each time we ask
- Breadth and depth of data

The Power of Longitudinal Data



Long-Term Effects of Local-Area New Deal Work Relief in Childhood on Educational, Economic, and Health Outcomes Over the Life Course: Evidence From the Wisconsin Longitudinal Study

Sepideh Modrek, Evan Roberts, John Robert Warren, and David Rehkopf

Health, Wealth, and Voting Trajectories in Later Life

Michal Engelman, PhD,^{1,2,*} Won-tak Joo, MA,^{1,2} Jason Fletcher, PhD,^{1,3} and Barry Burden, PhD^{1,4}



School Context in Adolescence and Cognitive Functioning 50 Years Later

Sara M. Moorman¹, Emily A. Greenfield², and Sarah Garcia³

Effect of childhood proximity to lead mining on late life cognition

Mark Lee^{a,b,c}, Haena Lee^c, John Robert Warren^{a,b}, Pamela Herd^d

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Who is Missing



- WLS first asked participants to identify their race/ethnicity in 2004.
- Nearly 99% checked “White.”
- The second most frequent answer, American-Indian or Alaska Native, was chosen by 0.5%.
- The remaining half-percent described themselves as Black, Asian, Hispanic, or other.

Diversity, Inclusion, and Aging in the Midwest: Opportunities for New Directions (DIAMOND)

Buscamos Latinos de 65 años o más para participar en una entrevista en el marco de un proyecto de investigación

¿Sabías que?:

A pesar del rápido crecimiento de la comunidad Latina en Wisconsin, se sabe muy poco sobre sus historias de vida, salud, experiencias de envejecimiento y necesidades.

Si tú tienes:

- 65 años o más y
- Te consideras Latino

¡Queremos aprender de ti!

Te invitamos a participar en una entrevista presencial, telefónica o virtual para el proyecto "Nuestras Experiencias en Wisconsin: aprendiendo sobre los Latinos de 65 años o más", que forma parte de la Encuesta Longitudinal de Wisconsin.



Nuestras Experiencias en Wisconsin

Ofrecemos \$50 por hora de entrevista (y el pago de costos de traslado) para **compenzarte y agradecerte por tu tiempo.**

Para participar o saber más sobre el Proyecto, contacta a la coordinadora del estudio:

Sabrina Sanchez
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(608)-263-0462.



Center for Demography
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UNIVERSITY OF WISCONSIN-MADISON



Diversity, Inclusion, and Aging in the Midwest: Opportunities for New Directions (DIAMOND) with Wisconsin's Hmong Communities



The Hmong Population

- During the Vietnam War, recruited by U.S. CIA to fight a “Secret War” in Laos
- After US retreat, Hmong were persecuted and escaped from Laos to Thai refugee camps.
- 1975-2000: Resettled as refugees by US, primarily in CA, MN, and Wisconsin
- Wisconsin’s 58,000 Hmong comprise its largest Asian population



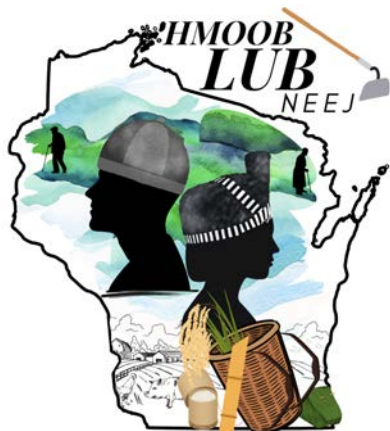
Source: Wisconsin Historical Society

Challenges and Barriers to Research Participation

- National surveys rarely identify Hmong as distinct subgroup
- Limited English speaking proficiency and limited translation resources
- Low literacy rates in English and Hmong (oral culture) – written surveys require support from helpers
- SES disadvantage (53% High School or less; 20.3% in poverty)
- Lack of familiarity with and mistrust of research

Sources: Ledesma (2016); Pew Research Center (2021); Lor & Bowers (2018); Lor et al. (2020)

Hmoob Lub Neej (Hmong People's Lives)



- Goal: To increase the representation of Wisconsin's Hmong community in health research
- Outcomes:
 - To develop knowledge for and about the Hmong community
 - To produce data using a collaborative process that centers Hmong voices
- Methods: Life history interviews, followed by survey

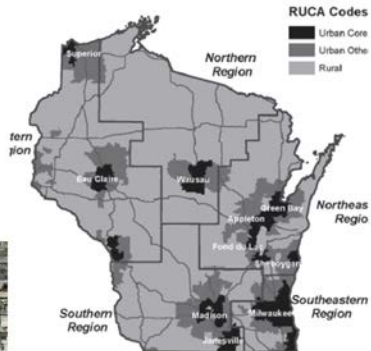
“When We Arrived in this Country, We Were Already Very Old”: Health and Aging in Wisconsin’s Hmong Refugee Community

Abstract

[...] Participants’ narratives link life-course hardships with physical and mental health challenges, generating a historically and culturally-specific delineation of trauma as both individual and collective experiences. Our analysis situates individual trauma within broader geopolitical and institutional circumstances and demonstrates that familial and communal ties – and their absence – are sources of both tension and resilience in this population.

The goal of this qualitative analysis isn’t just to diversify the WLS: It’s to more accurately capture what Wisconsin – and its aging populations – now looks like.

Wisconsin No Longer Looks Like It Did in 1957: Survey of the Health of Wisconsin (SHOW)



SHOW Sample

- Statewide household-based health examination survey of 5,742 adults recruited 2008-2019. Longitudinal follow up completed in April.
- Representative sample of urban and rural Wisconsin residents. Oversampling of Black young adults in Milwaukee via extensive community partnerships
- Includes physical measurements and biorepository with whole blood samples.

The Life Course of People and Places



Exposure to neighborhood (dis)advantage accumulates over time, a function of both **individual residential histories** and changes in **neighborhood characteristics** including composition and the physical, built, and social environment.

Neighborhoods may impact health inequities via a process of “**weathering**,” whereby poor environmental conditions, accumulated stresses, and lack of resources render individuals and sub-populations vulnerable to disease and mortality.



(iStock/Getty Images)

Weathering and Epigenetic Clocks

- The weathering hypothesis posits that health inequities result from the **biological embodiment** of exposure to economic hardships, discrimination, and social marginalization.



- Epigenetic markers – and particularly clocks measuring accelerated biological aging via DNA methylation – are the newest frontier in this field of research.

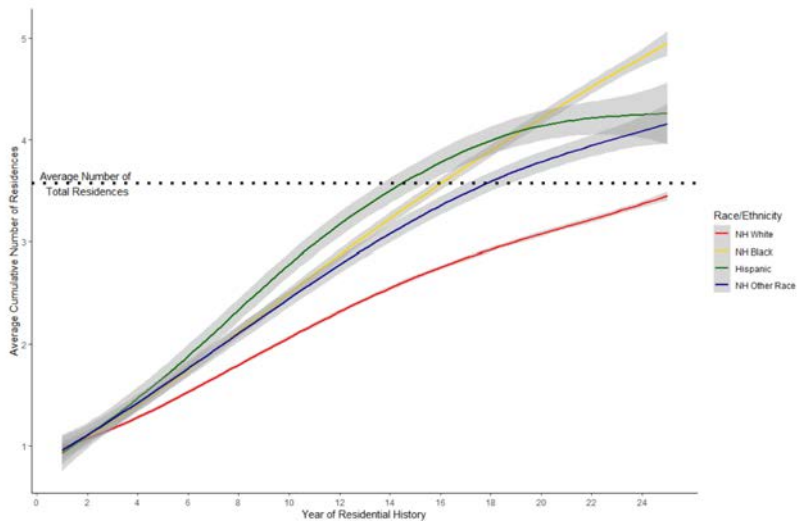
Research on Epigenetics, Weathering, and Residential Disadvantage (REWARD)

Goal: Understand whether and how exposure to cumulative contextual (dis)advantage shapes health inequities via epigenetic mechanisms.

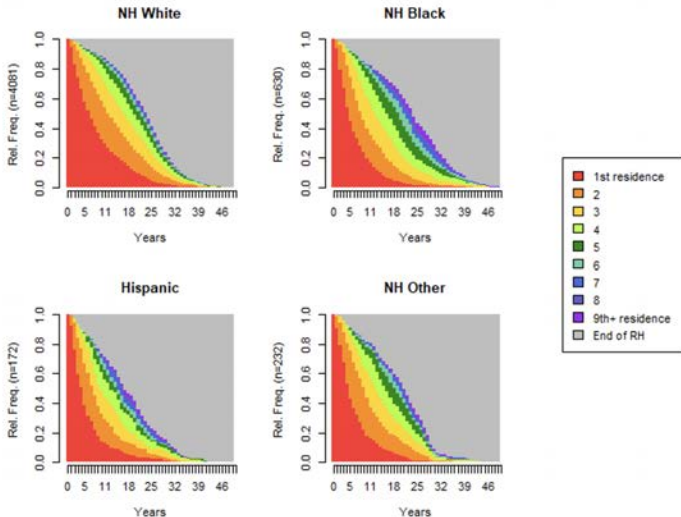
Specifically, REWARD focuses on

- Characterizing cumulative contextual exposures by constructing **long-term residential histories** and linking them to indicators of neighborhood (dis)advantage
- Measuring **accelerated biological aging** via multiple DNA methylation (DNAm) clocks
- Exploring linkages between contextual exposures and biological outcomes for insight into potential mechanism of weathering.

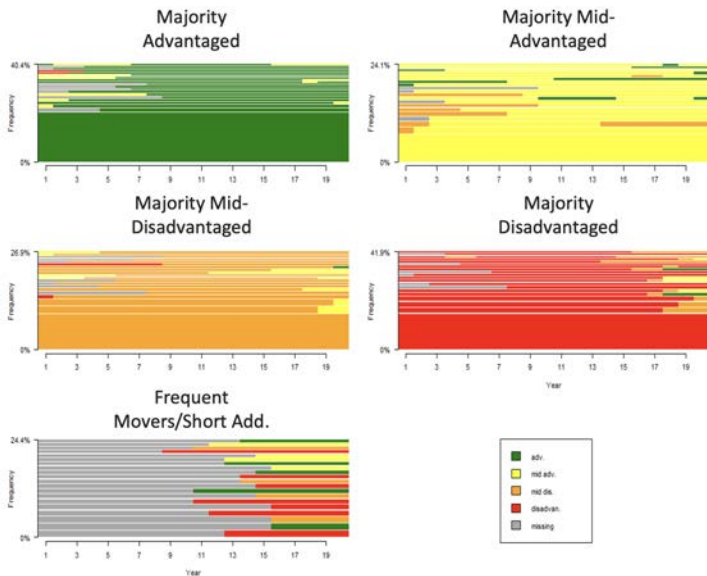
Number of Residences by Race/Ethnicity



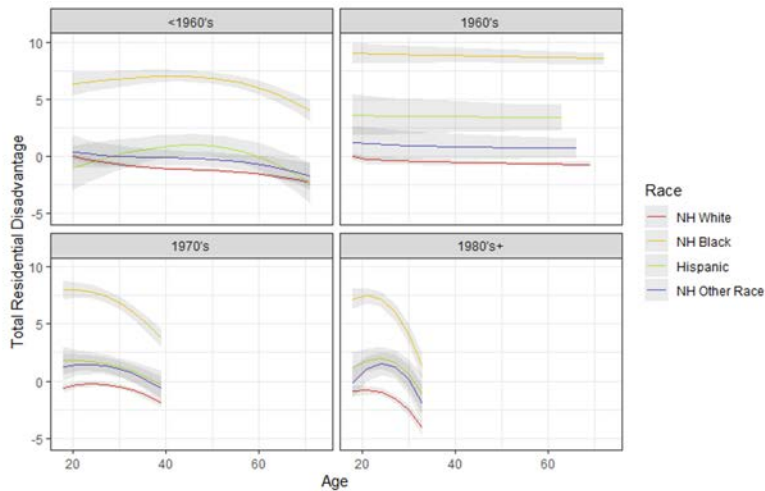
Moves and Durations



Typologies of Residential Disadvantage Sequences

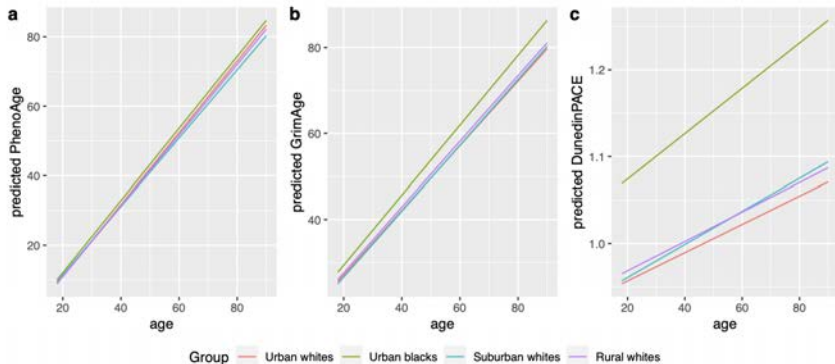


Trajectories of Residential Disadvantage, by Cohort & Race



Trajectories analysis by Christina Kamis

Epigenetic Clocks, by Race and Geography



- GrimAge: A 40 year old urban Black urban resident in Wisconsin has the biological age profile of a 44 year old white Wisconsinite.
- The Black-White gap in epigenetic age increases across age/cohorts.

Places, Contexts, and Accelerated Aging

- Significant difference in accelerated biological aging across levels of cumulative neighborhood disadvantage in multiple Epigenetic clocks
- Compared to the 1st quintile (least disadvantage) those in the 5th quintile of neighborhood disadvantaged on average aged 1.78 years faster using PhenoAge clock, and 1.90 years faster using GrimAge clock.
- Preliminary results suggestive of differences in epigenetic aging across racial groups and residential environments.
- Further research needed to help us understand how our bodies respond to physical and social environments.

The WLS Team

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Thank you



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To learn more about the Wisconsin Longitudinal Study:

<https://wls.wisc.edu/>

To learn more about the Survey of the Health of Wisconsin:

<https://show.wisc.edu/>