

PUBLIC HOUSING RELOCATIONS & RELOCATORS' VULNERABILITY TO HIV: A STRUCTURAL APPROACH

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Overview

- Public Housing Policy in the US
- Atlanta Public Housing Relocation Study
 - Methods
 - Results
- Discussion

Paradigm Shift in US Public Housing: From Concentration to Dispersal

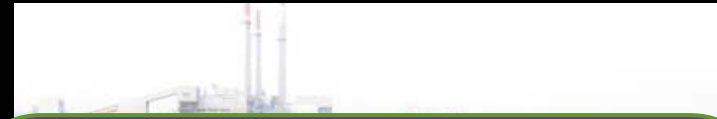
- 1950s & 1960s
 - Federal (HUD) and local public housing authorities sought to concentrate public housing units into high-rises and campuses
- 1980s: Growing concern about consequences
 - Concentrated poverty
 - Some complexes begin to fall into disrepair in absence of federal funding
 - Urban gentrification



- 1992 Report of the National Commission on "Severely Distressed" Public Housing
 - Conditions intolerable
 - Distressed public housing must be repaired or demolished

Paradigm Shift in US Public Housing: From Concentration to Dispersal

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 - Federal (HUD) and local public housing authorities sought to concentrate public housing units into campuses and “superblocks”
- 1980s: Growing concern about consequences
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 - Some complexes begin to fall into disrepair in absence of federal funding



“Severely distressed” public housing has unusually high rates of:

- Unemployment,
- Poverty, or
- Violent crime

Or a high level of physical disrepair

- 1992 Report of the National Commission on “Severely Distressed” Public Housing
 - Conditions intolerable
 - Distressed public housing must be repaired or demolished

Paradigm Shift in Public Housing

- Several public housing policies were developed in response that were designed to:
 - Demolish, rehabilitate, or replace “severely distressed” public housing complexes
 - Revitalize neighborhoods surrounding complexes
 - Decrease concentration of very low income families
- Examples: Moving to Opportunity and HOPE VI

Relocations and Health?

Public
housing
relocations

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Biobehavioral
vulnerability
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Experience post-
relocation
reductions in
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- Poverty rates

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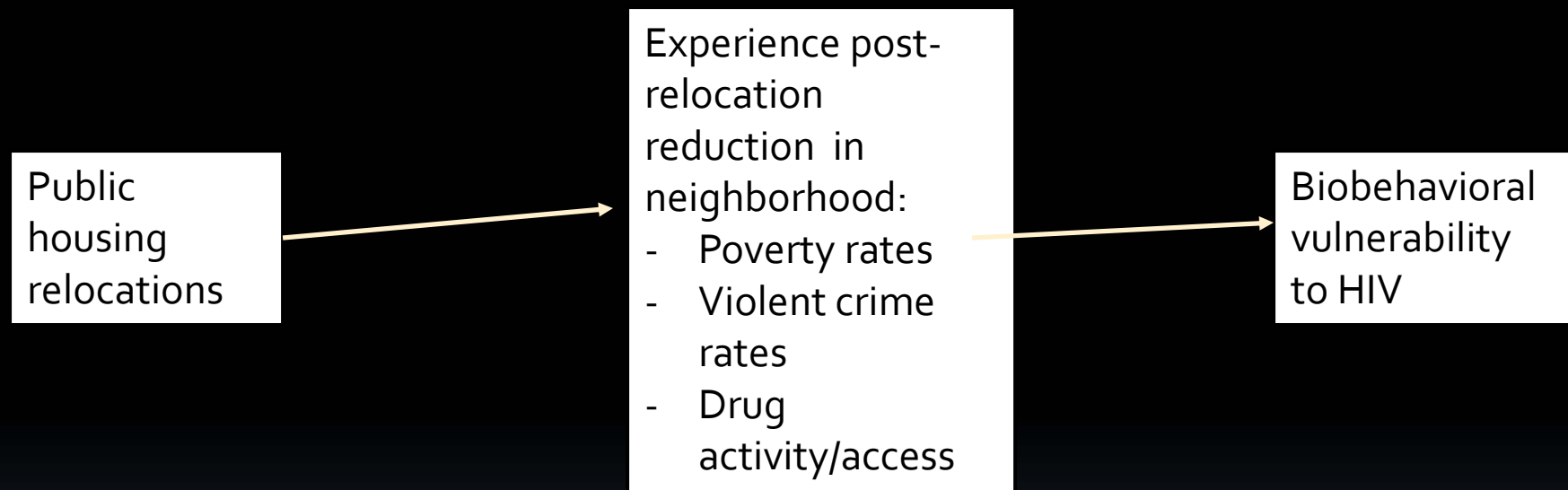


Experience post-relocation
reduction in
neighborhood:

- Poverty rates
- Violent crime rates
- Drug activity/access

Biobehavioral
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to HIV

Relocations and Health?



Research Question

- Are post-relocation changes in neighborhood characteristics associated with changes in biobehavioral vulnerability to HIV over time in a cohort of adult African-American relocaters in Atlanta, Georgia?

Study site: Atlanta, Georgia

- Atlanta at the forefront of demolishing distressed public housing
 - About 50,000 Atlanta residents have been relocated since 1995
 - >95% African-American
- This study focused on the final wave of relocations
 - Targeted 7 complexes in 2008-2010
 - Relocaters given "Housing Choice" vouchers to find new housing in rental units in the private market



Study Design

- Multilevel, longitudinal Study: Gathered 7 waves of data
 - Presenting analyses of waves 1-4
 - Wave 1: Pre-relocation
 - Waves 2-4: Gathered every 9 months thereafter
 - All participants relocated between baseline and Wave 2.

Study Eligibility Criteria

- Study eligibility criteria
 - Resided in one of the 7 complexes in Atlanta that was emptied and demolished circa 2008
 - ≥ 18 years old
 - African-American
 - Sexually active in the past 12 months
- Oversampled people who misused alcohol or other drugs at baseline
 - 25% dependent on alcohol or drugs
 - 50% misused but not dependent
 - 25% did not misuse substances

Recruitment

- Non-probability quota sampling
 - Tried to reach as diverse a group of residents as possible
 - On-site recruitment, varied by time of day and day of week
 - Drug-related and HIV-related local organizations
 - Local health clinics, churches
 - Networks
 - Held a series of “eat and greets” onsite at each complex to let people know about the study and get to know the study staff.

Individual-Level Measures

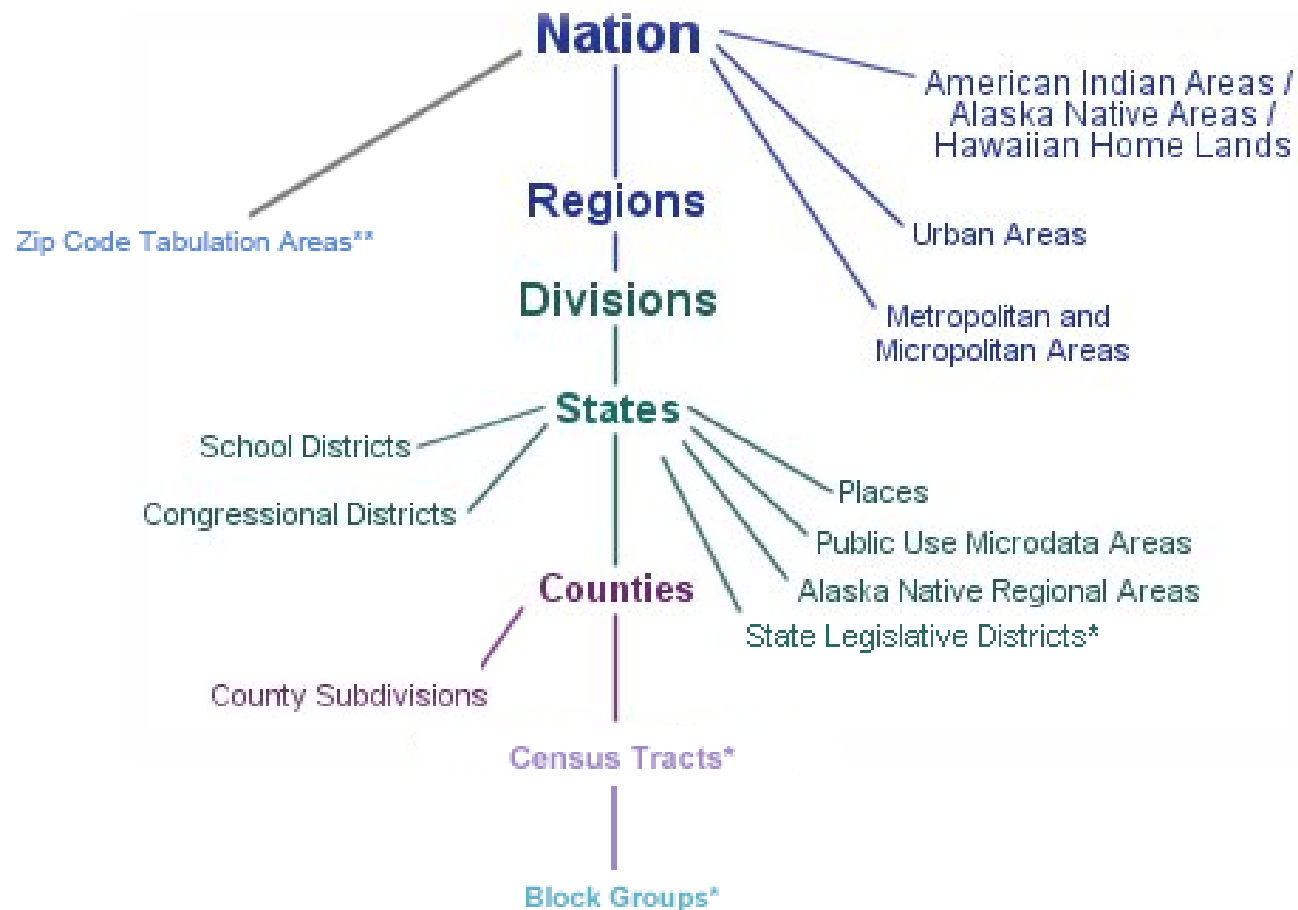
- Gathered at each wave via survey and biosample collection
- Outcomes
 - STI: Infection with ≥ 1 sexually transmitted infections
 - Urine tests positive for Chlamydia, gonorrhea, or trichomonas
 - People who tested positive were referred to treatment
 - Sexual Risk Outcomes (past 6 months)
 - Indirect concurrency (i.e., you believe that your partner has other partners simultaneously)
 - Perceived Partner Risk
 - Substance use
 - Binge drinking (BRFFS)
 - Frequency of use of illegal substances (TCUDS)
 - Meet criteria for dependence (TCUDS)
 - Mental health
 - Number of depressive symptoms (CES-D)
- Individual-level covariates (e.g., gender, age, income)

Place-based measures

- Which geographic unit of analysis to use?
 - Criteria:
 - Substantively meaningful – capture lived environment
 - Had to *change* post-relocation for many participants
 - Feasible – data must be available for those units

Census Geography

Hierarchy of Select Geographic Entities in the American Community Survey



Place-based measures

- Census tracts
 - Designed to be relatively permanent stable subdivisions of counties; boundaries may be visible or invisible
 - Relatively homogenous population characteristics
 - Typically home to 2,000-4,000 residents

Census-Tract Level Measures

- Baseline

Tract-level exposures	Sources	Notes
Violent crime rate per 1000 adults	Atlanta police department	Obtained latitude/longitude for each offenses; linked to tracts
Off-premises alcohol outlet density (per sq mi)	GA Department of Revenue	Obtained addresses; geocoded to tracts
Poverty rate	US census	Obtain tract-level data
Median household income	US census	Obtain tract-level data
High-school graduation rates	US census	Obtain tract-level data
Sex ratios	US census	Obtain tract-level data (BUT remove incarcerated people)
STI prevalence	GA department of health	Obtain tract-level data

Census-Tract Level Measures – time varying

Tract-level exposures	Sources	Notes
Violent crime rate per 1000 adults	Police departments - initially just ATL - 30 at each wave thereafter	Some police departments do not record crimes electronically; FOIL requests
Off-premises alcohol outlet density (per sq mi)	Department of Revenue - initially GA - post-relocation, SC, IL, NY, NJ	Some Depts of Revenue refuse to release to “protect privacy”
Poverty rate	US census	
Median household income	US census	
High-school graduation rates	US census	
Sex ratios	US census	
STI prevalence	Department of health - initially GA - post-relocation, SC, IL, NY, NJ	

Census-Tract Measures

- Measures were highly correlated with one another
 - ▣ Threat of multicollinearity in statistical models
- → Principal components analysis
 - Social disorder component
 - Violent crime rate per 1000 residents for each tract and year
 - Number of off-premises alcohol outlets per square mile
 - Economic disadvantage component
 - Tract poverty rate
 - Median household income
 - Tract high school graduation rate

Retention

- Intensive retention efforts
 - W1-W2: 95%; W1-W4: 91%; Wave 1-7: 87%
- Efforts included
 - Monthly contact, with incentives
 - Network contact, with incentives
 - Lexis/Nexis database searches
 - Home visits
 - Scanning local jails and prison inmate directories

Analysis

- Multilevel models were used to test associations between tract-level phenomena and each outcome
 - Three level model:
 - Interview wave – time varying characteristics of participants
 - Participant – non-time varying characteristics of participants
 - Baseline census tracts (which contained the public housing complexes)
 - Controlled for important individual-level factors

Table 2. Characteristics of the sample over time (N=172)

Characteristics of participants	Wave 1 N=172	Wave 2 N=163	Wave 3 N=160	Wave 4 N=156
Gender -- % (N)				
Woman	57.0% (98)	58.9% (96)	58.1% (93)	57.7% (90)
Man	43.0% (74)	41.1% (67)	41.9% (67)	42.3% (66)
Age -- mean (SD)	42.8 (13.9)	43.8 (13.8)	45.0 (13.9)	46.1 (13.7)
Married or living as married -- % (N)	8.7% (16)	9.8% (16)	8.8% (14)	8.3% (13)
Annual Household Income -- % (N)				
\$0-\$9,999	64.9% (111)	59.6%(97)	56.9% (91)	62.2% (97)
\$10,000 - \$14,999	15.2% (26)	15.3% (25)	17.5% (28)	18.0% (28)
\$15,000 - \$19,999	7.0% (12)	6.8% (11)	10.6% (17)	5.1% (8)
≥\$20,000	9.9% (17)	12.3% (20)	12.3% (16)	7.0% (11)

Table 3. Changes in Sexual Risk Behaviors and STIs Over Time				
Characteristics of participants	W ₁	W ₂	W ₃	W ₄
Perceived partner risk -- mean (SD)	1.99 (1.65)	1.51 (1.41)	1.43 (1.33)	1.46 (1.33)
Indirect concurrency--%(N)	37.5% (57)	28.7% (37)	21.3% (27)	21.5% (28)
Test positive for ≥ 1 STI -- %(N)				
Overall	29% (47)	19% (25)	21% (29)	16% (22)
Women	35% (32)	24% (19)	28% (23)	15% (12)
Men	12% (9)	7% (4)	8% (5)	6% (4)

Table 4. Changes in Substance Use and Depression Over Time in the Sample of Relocaters

Characteristics of participants	Wave 1	Wave 2	Wave 3	Wave 4
Met criteria for substance dependence -- % (N)	21% (36)	11% (18)	9% (14)	9% (14)
Used illegal drugs – % (N)	30% (50)	25% (40)	19% (30)	19% (29)
Engaged in binge drinking - % (N)	38% (63)	26% (41)	28% (44)	19% (29)
Depression Score—mean (SD)				
Overall	23.8 (9.3)	15.5 (11.1)	14.7 (10.2)	14.7 (11.0)
Women	26.0 (9.5)	16.7 (10.8)	17.2 (16.3)	16.3 (11.2)
Men	21.0 (8.1)	13.7 (11.1)	11.4 (8.7)	12.7 (10.5)

Table 5. Changes in characteristics of the census tracts where participants lived over time

Characteristic of census tracts	Wave 1 Mean (SD)	Wave 2 Mean (SD)	Wave 3 Mean (SD)	Wave 4 Mean (SD)
Median household income	\$15,809.9 (\$4,482.6)	\$34,559.6 (\$17,612.6)	\$36,946.7 (\$20,471.4)	\$37,288.9 (\$21,470.6)
% of households in poverty	46.1 (9.6)	29.3 (12.9)	28.1 (13.8)	28.4 (14.3)
% of adults with \leq high school diploma	67.1 (13.4)	50.6 (18.3)	49.1 (19.3)	49.1 (19.4)
% of residents who are Black	81.3 (17.5)	74.0 (28.0)	72.2 (27.5)	71.8 (26.7)
Violent crime rate (per 1000)	35.9 (16.4)	21.4 (16.5)	19.9 (17.7)	21.6 (18.0)
Density of alcohol outlets per sq mile	9.3 (8.1)	6.2 (5.0)	6.4 (5.4)	6.2 (5.3)
Economic Component	0.83 (0.52)	-0.24 (0.90)	-0.35 (0.98)	-0.34 (1. 0)
Alcohol outlet/Violence Crime Component	0.16 (1.28)	-0.08 (0.88)	-0.06 (0.85)	-0.04 (0.87)
Sex ratios	0.89 (0.32)	0.90 (0.21)	0.91 (0.29)	0.89 (0.27)

Table 6. Results of Multivariable Multilevel Analyses about the Relationship between Changes in Tract-Level Characteristics to Sexual Behavior/Sexual Health Outcomes in the Cohort*

Tract-level Exposures	STIs OR (p-value)	Indirect Concurrency OR (p-value)	Perceived Partner Risk beta (p-value)
Economic disadvantage			
Baseline			0.06 (p=0.57)
Change since baseline			0.11 (p=0.06)
Community Violence			
Baseline		1.21 (0.03)	
Change since baseline		1.28 (0.003)	
Male:female sex ratios			
Baseline	0.24 (p=0.27)		
Change since baseline	0.16 (p=0.05)		

*Each model controlled for pertinent potential individual-level confounders, such as age, gender, and income.

Table 7. Results of Multivariable Multilevel Analyses about the Relationship between Changes in Tract-Level Characteristics to Substance Misuse/Depressive Symptoms in the Cohort*

Tract-level Exposures	Frequency of illegal drug use	Binge Drinking	Depressive symptoms
Economic disadvantage			
Baseline	0.92 (p=0.54)	2.17 (0.06)	-1.14 (p=0.27)
Change since baseline	0.18 (p=0.03)	0.30 (0.03)	0.97 (0.05)
Alcohol outlets/Violent Crime			
Baseline			1.25 (p<0.005)
Change since baseline			0.86 (p=0.001)
Density of off-premises alcohol outlets			
Baseline		1.01 (p=0.68)	
Change since baseline		0.29 (p=0.05)	

*Each model controlled for pertinent potential individual-level confounders, such as age, gender, and income.

Conclusions

- In this sample there were post-relocation improvements in all the health outcomes and health behaviors studied
- In the main, post-relocation improvements were greater among individuals who moved to census tracts with less economic disadvantage and social disorder and with more equitable sex ratios.

Reflections

Limitations

- Non-probability sample
 - Sample composition similar to composition of underlying complexes (gender, household size)
- No comparison group
- Natural Experiment:
 - Could not randomize relocaters to communities

Strengths

- Atypical for study of structural exposures
 - Longitudinal design, with very high retention rates
 - Used biological & self-reported behavioral outcomes
 - Remarkable trove of time-varying, place-based measures

Reflections

Limitations

- Non-probability sample
 - Sample composition similar to composition of underlying complexes
- No comparison group
- Natural Experiment/Quasi-Experimental Design:
 - Could not randomize relocaters to communities
 - Note that there were no statistically significant differences in post-relocation improvements in neighborhood quality by baseline sexual risk or STI status.

Strengths

- Atypical for study of structural exposures
 - Longitudinal design, with very high retention rates
 - Used biological & self-reported behavioral outcomes
 - Remarkable trove of time-varying, place-based measures

Closing Thoughts

- Public housing policies continue to evolve in the US, and evidence suggests that they affect the public's health.
 - In this case, public housing relocations were a structural intervention that affected biobehavioral outcomes, in part, by changing *neighborhood* conditions.
 - How can public health departments and researchers be involved in determining the direction of these policies so they promote health (or at least don't harm health)?

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