Neighborhood Deprivation and HIV Retention-in-Care in a Southern Metropolitan Setting

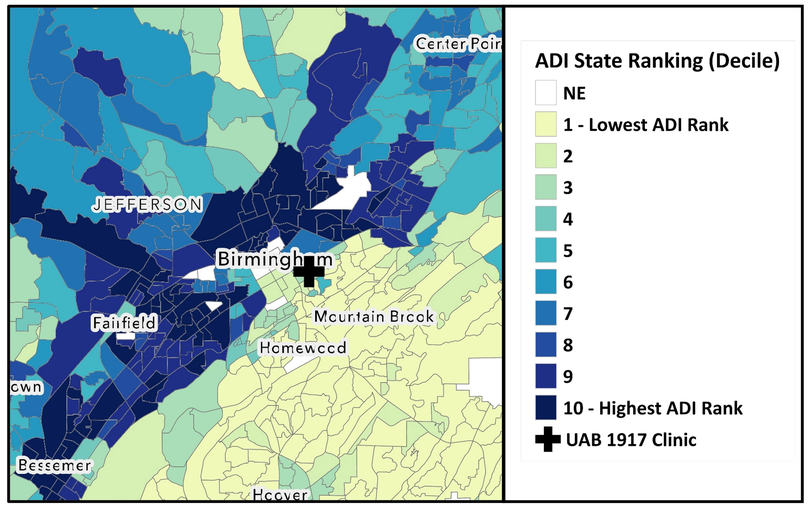
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915

Background

The environment in which people with HIV (PWH) reside plays a complex and influential role in shaping outcomes along the HIV Care Continuum. In this study, we investigated the **Area Deprivation Index (ADI)**—a comprehensive metric of neighborhood-level disadvantage which ranks geographic areas based on cumulative socioeconomic adversity—as **a potential determinant of retention-in-care (RiC) among PWH.**

Figure 1. Area Deprivation Index, Birmingham, AL, USA



Methods

- Observational cohort of PWH who:
  - Initiated HIV care between 2010 and 2022 at a university-affiliated clinic
  - Live within the Birmingham, Alabama Metropolitan Statistical Area (BMSA)
- **Neighborhood disadvantage was assessed using ADI**, which ranks disadvantage of Alabama census block groups on a scale from 1 (least) to 10 (most), operationalized as tertiles (1-2 Low, 3-8 Intermediate, 9-10 High)
- RiC, defined as completing at least two HIV care visits, ≥90 days apart, within 12-months of their initial clinic visit
- Statistical Analysis:
  - Logistic regression via GEE, accounting for clustering at the census block group level
  - **Stratified by patient status at initial clinic visit: previously established** (virally suppressed, VL<200 copies/mL, at initial visit) **or newly established** (viremic at initial visit)

Conclusions

For PWH newly established in HIV Care, neighborhood disadvantage (ADI ≥9) is significantly associated with lower rates of RiC, compared to neighborhoods with the lowest levels of neighborhood deprivation (ADI ≤2)

To advance equity in HIV care, targeted efforts are needed to disrupt the compounding effects of environmental disadvantage on care engagement and long-term health trajectories

Table 1. Multivariable analysis of RiC, stratified patient status at initial clinic visit

	Previously Established		Newly Established	
	Frequency (Col. %)	**Multivariable aOR (95% CI)**	**Frequency (Col. %)**	**Multivariable aOR (95% CI)**
Neighborhood Deprivation		.66		**.0068**
Low (ADI: 1-2)	246 (19.7%)	Reference	400 (16.4%)	Reference
Intermediate (ADI: 3-8)	553 (44.3%)	1.27 (0.77, 2.09)	1137 (46.5%)	**0.63 (0.43, 0.93)**
High (ADI: 9-10)	448 (35.9%)	1.16 (0.66, 2.04)	908 (37.1%)	**0.55 (0.37, 0.82)**

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Figure 2a. ADI, Previously Established PWH

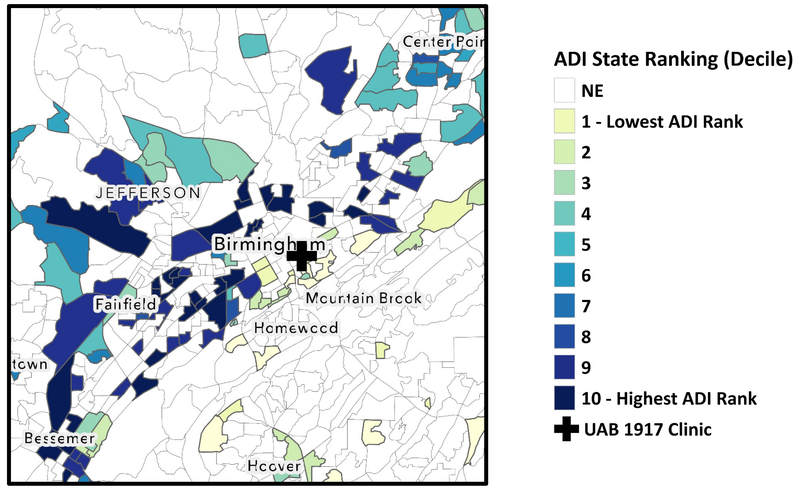
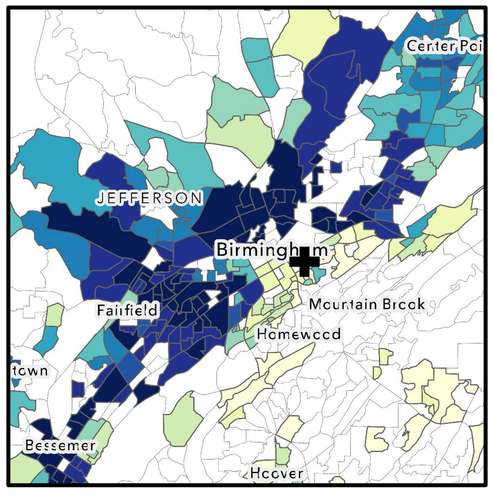


Figure 2b. ADI, Newly Established PWH



Results

- Total, N =3,692
- The cohort consisted mostly of young Black men (<50 years) and diagnosed with HIV from 2010 to 2015
- 36.7% (n = 1,356) live in highly disadvantaged neighborhoods (ADI ≥ 9)
- 33.8% (n = 1,247) were previously established in HIV care
- 66.2% (n = 2,445) were newly established in care

Regression Analysis

Previously established PWH (Table 1)

- ADI was not significantly associated with RiC (p = .66)

Newly established PWH (Table 1)

- ADI was significantly associated with RiC (p = .0068)
- PWH in highly disadvantaged neighborhoods were significantly less likely to be retained in care, compared to Low ADI (aOR: 0.55; 95% CI: 0.37, 0.82)

Regardless of patient status at initial clinic visit, age was a significant predictor of RiC (both p <.001) and PWH ≥50 years were more likely to be RiC