The Impact of Neighborhood Inequities on Engagement in Care among Adolescents and Young Adults with Sickle Cell Disease

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INTRODUCTION

Sickle cell disease (SCD) is an inherited blood disorder that primarily impacts Black and African Americans and causes acute pain and organ damage. Adolescents and young adults (AYA) with SCD face increased morbidity alongside reduced engagement in care behaviors. Many AYA with SCD live in poverty-stricken neighborhoods; however, pathways linking neighborhood factors to engagement in care in SCD are understudied.

OBJECTIVE

This study aims to evaluate how neighborhood inequities is associated with emergency department reliance, clinic attendance ratio, and treatment attendance ratio among AYA with SCD.

METHODS

Forty-nine AYA with SCD (ages 16-25, *Mean* = 20.1, *SD* = 2.53; 59.2% male) completed baseline surveys.

Neighborhood Measures

Census tract-level geocoding was conducted using AYA-reported home address to obtain:

- Percentage of households living in poverty
- Median household income

Engagement in Care Measures

Electronic health record review, 6 months post baseline, was conducted to obtain:

- **Emergency Department Reliance:**
$$\frac{\text{ED Visits}}{\text{ED Visits + Attended Hematology Visits}}$$
- **Clinic Attendance Ratio:**
$$\frac{\text{Attended Hematology Visits}}{\text{Attended + Canceled + No-Show Hem Visits}}$$
- **Treatment Attendance Ratio:**
$$\frac{\text{Attended Treatment Visits}}{\text{Attended + Canceled + No-Show Treatment Visits}}$$

RESULTS

Table 1. Pearson correlations of study variables

	Emergency Department Reliance	Clinic Attendance	Treatment Attendance
Age	-.17	-.00	.11
Neighborhood Income	-.20	.13	**.37⁺**
Neighborhood Poverty	.21	**-.26⁺**	**-.45***

⁺p < .10, *p < .05

Table 2. Linear regression of income predicting engagement in care

	Emergency Department Reliance		Clinic Attendance		Treatment Attendance	
	β	R^2	β	R^2	β	R^2
		.13		.05		.16
Age	-.11		-.03		-.03	
Gender	**-.27⁺**		.18		-.16	
Neighborhood Income	-.20		.14		.34	

⁺p < .10

Table 3. Linear regression of poverty predicting engagement in care

	Emergency Department Reliance		Clinic Attendance		Treatment Attendance	
	β	R^2	β	R^2	β	R^2
		.16		.11		.20
Age	-.12		-.03		-.07	
Gender	**-.30⁺**		.20		-.06	
Neighborhood Poverty	-.23		**-.27⁺**		**-.45***	

⁺p < .10, *p < .05

DISCUSSION

Findings suggest that socioeconomic disadvantage at the neighborhood level may restrict opportunities for consistent and preventative care, reinforcing disparities in disease management. Thus, AYA from high-poverty neighborhoods might benefit from targeted behavioral intervention.

When adolescents and young adults with **sickle cell disease** live in neighborhoods with higher **poverty**, they attend fewer **outpatient treatments**.

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