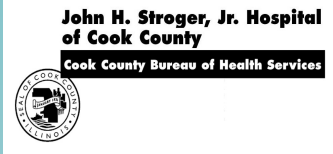
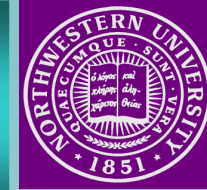


Ethnic Disparities in Asthma Morbidity in Chicago

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Abstract

Ethnic disparities in asthma outcomes: the role of socioeconomic status in the CHIRAH study.

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Background The relative effects of ethnicity and socioeconomic status (SES) on asthma outcomes have been hotly debated. Using a large population-based cohort of adults and children with asthma, we readdress these relationships using statistical methods that account for ethnicity as partly causing SES.

Methods We screened 32,858 households in Chicago and recruited 560 children and 350 adults with asthma. We compared 3 ethnic groups: Hispanic (H), Black (B), and White/Other (W). Socioeconomic status was measured as the composite of 11 variables. The 3 asthma outcomes were: frequency of asthma symptoms, experiencing a severe exacerbation requiring urgent medical care, and asthma-specific quality of life. We used a marginal structural model to assess whether crude disparities in asthma outcomes persisted after appropriately accounting for SES.

Results There were marked disparities among children across ethnic groups for all 3 asthma outcomes, with White children faring best. The same pattern was true for adults, except for the frequency of asthma symptoms, which was the same across ethnic groups. The crude disparities were important, with a greater than 25 percentage point difference in experiencing a severe exacerbation between Black or Hispanic subjects and White subjects. However, after appropriately accounting for the effects of SES, only 2 differences across ethnic groups were significant: Hispanic children were less likely to experience a severe asthma exacerbation (H 57%, W 62%, B 70%; P=.03); but Hispanic adults had lower asthma quality of life (mini-AQLQ: H 4.1, B 4.4, W 4.5; P=.03).

Conclusions There were important disparities in asthma outcomes across ethnic groups, but there were no residual disparities between Blacks and Whites after appropriately accounting for SES. However, Hispanic adults have persistently lower asthma quality of life.
Funding: NHLBI 1 U01 HL72497-06

Objective

In a city with ethnic diversity and high levels of asthma morbidity, determine if the disparities in asthma outcomes across ethnic groups are primarily because of differences in socioeconomic status.

Study Design

- Population-based, cross-sectional survey
- Face to face interviews
- Population proportionate sampling of Chicago schools to identify children and their family members with asthma
- Eligibility Criteria:**
- Age: 8-14 or 18-40 years
- English language
- Physician-diagnosed asthma requiring use of asthma medication for > 8 weeks over past 12 mo.
- Agree to periodic interviews over 2 years

Measures & Analysis

Ethnicity:

Self-described as Black/African American, Hispanic/Latino and White/Other.

Socioeconomic Status:

Composite (principal components analysis) of:
Household income
Education
Literacy (using REALM)
Employment
Home ownership
Household density
Medical insurance
Loss of insurance in past 12 months
Government assistance (public aid, food stamps)
Personal physician

Asthma Outcomes

- Asthma-related quality of life adult: Juniper's mini-AQLQ (range 1–7)
child: Children's Health Survey for Asthma. (range 1–5)
- Symptom frequency: sum of days and nights with asthma symptoms in past 14 days (range 0–28)
- Severe asthma exacerbation requiring urgent medical care: percent with at least one in past 12 months.

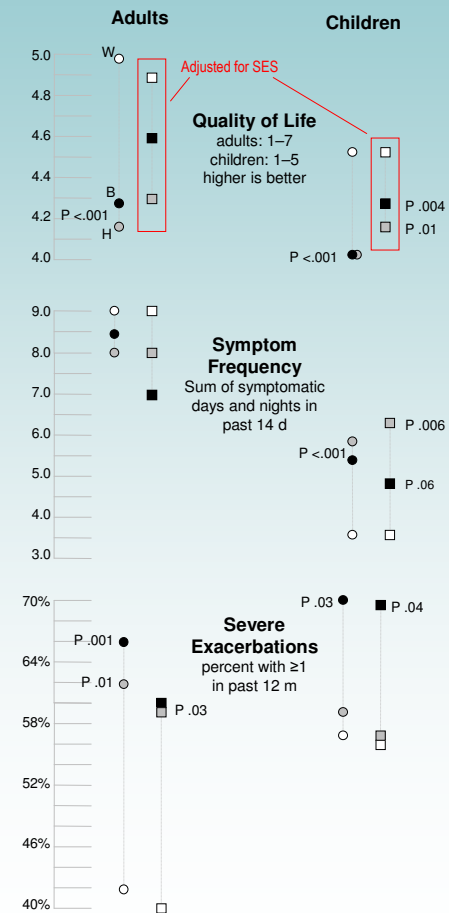
Analysis Strategy

Marginal structural models with inverse probability weighting to account for SES as a intermediate (mediating) variable.

Sample Characteristics

	Adults N = 350	Children & Caregivers N = 560
Female	78%	42%
Age: median, yrs	31 y	10 y
Ethnic Group		
Black/AA	57%	58%
Hispanic	28%	25%
White/Other	15%	17%
Education		
< High School grad	17%	13%
High School graduate	67%	68%
College	16%	19%
Literacy: low	33%	29%
Income: annual household		
< 15K	28%	21%
15–30K	26%	28%
30–50K	18%	19%
> 50K	28%	33%
Home ownership	29%	35%
Household size, median	5	4
Unemployed	38%	36%
No private health insurance	54%	52%
Lost insurance in past year	22%	9%
Government assistance	58%	55%
Personal physician	80%	90%

Results



Conclusions

- 1) There are important ethnic disparities in asthma morbidity: Whites better off than Hispanics and Blacks.
- 2) Differences in socioeconomic status appear to explain some of disparities in asthma QOL but do not explain disparities in other asthma outcomes.

Implications

Differences across ethnic groups other than differences in SES likely explain these disparities in asthma morbidity: e.g., possible differences in access to care, quality of clinical care, culturally-related symptom perceptions, health behaviors, psychosocial stressors, social support, indoor and outdoor air quality, and biology.