

Introduction

In the United States, Native Hawaiians and Other Pacific Islanders (NHOPIs) may experience some of the worst impacts of environmental degradation. Most environmental justice research has focused on African American and Latino communities. Almost no research has been conducted on environmental risk for NHOPI communities in the US.

NHOPIs make up a small proportion of the total US population (0.2% in 2010) (1). Most live in a few states such as Hawaii, California, Washington, and Florida (2). NHOPI health disparities include high rates of infant mortality, asthma, and obesity (3, 4). One possible upstream contributor to these poor health outcomes among NHOPIs is community exposure to environmental hazards.

This study will focus on environmental risk for NHOPIs in Los Angeles County, the US county with the largest population of NHOPIs outside of Hawaii (2).

Methods

In this study, comparisons are made between NHOPI, black, Hispanic/Latino, Asian, and non-Hispanic white neighborhoods to determine relative environmental risk in Los Angeles County. Neighborhoods are characterized as census blocks, with data from the 2010 US Census (1). Blocks with the top 1% largest populations of each racial/ethnic group were compared. Maps display the NHOPI neighborhoods and their proximity to environmental hazards.

Neighborhood environmental risk is determined using: a) proximity to major highways, b) proximity to toxic waste sites, and c) proximity to industrial air polluters. The Los Angeles Department of Regional Planning provides the location of major highways (5). Toxic sites are those listed on the U.S. Environmental Protection Agency's (EPA) National Priority List (6). Industrial air polluters are facilities in Los Angeles County that release air pollutants with known health impacts according to the 2010 EPA Toxic Release Inventory (7). In ArcGIS Desktop 10, these environmental factors were geocoded to the 2010 Census TIGER/Line files street network (8, 9).

Buffers were used to determine proximity of blocks to environmental hazards. The buffer distances varied based on the type of environmental hazard (10-12).

Results

NHOPI neighborhoods appear to have the highest rate of exposure to major highways and toxic waste sites than the other racial/ethnic categories. NHOPI neighborhoods have the second highest rate of exposure to industrial air polluters, just behind black neighborhoods in Los Angeles County.

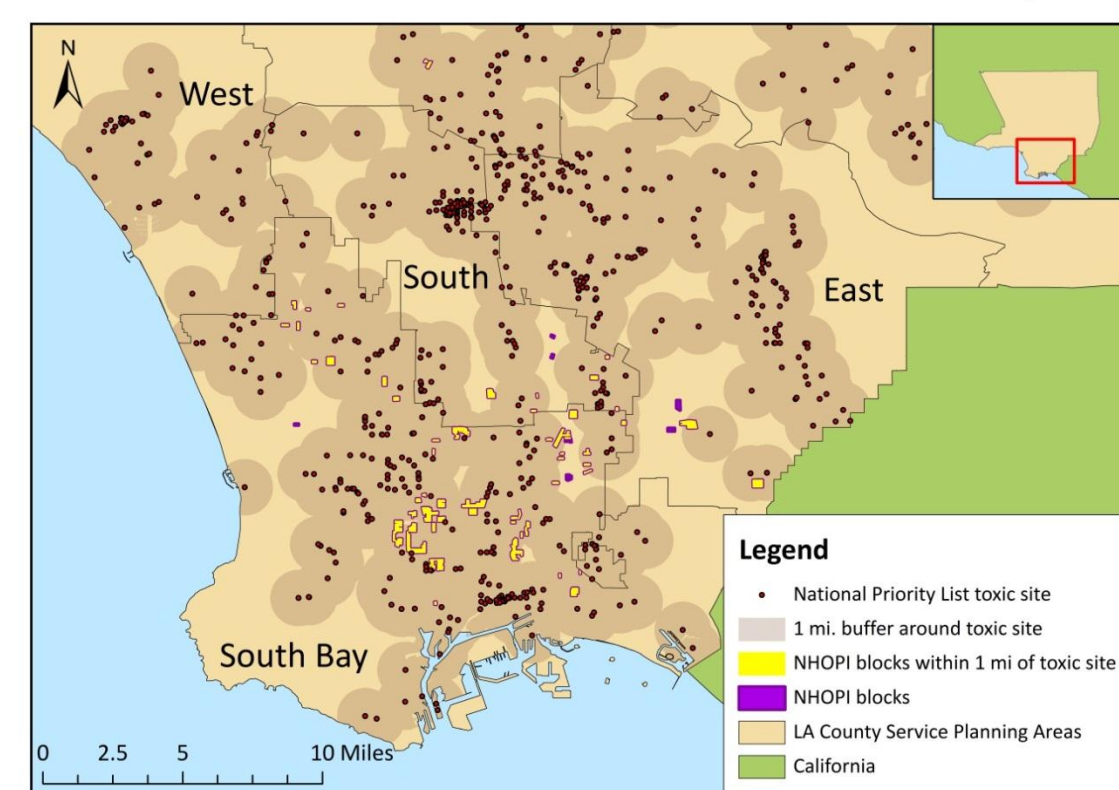
The maps provide a more nuanced picture of NHOPI neighborhoods and their environmental risk. NHOPI blocks seem to be clustered around the major highway routes, especially in the South Bay area. Some NHOPI blocks are located near to multiple highways, toxic waste sites, and industrial air polluters. Some NHOPI blocks appear to be exposed to toxins from multiple directions.

NHOPI Blocks Within 150 meters of Major Highway in LA County



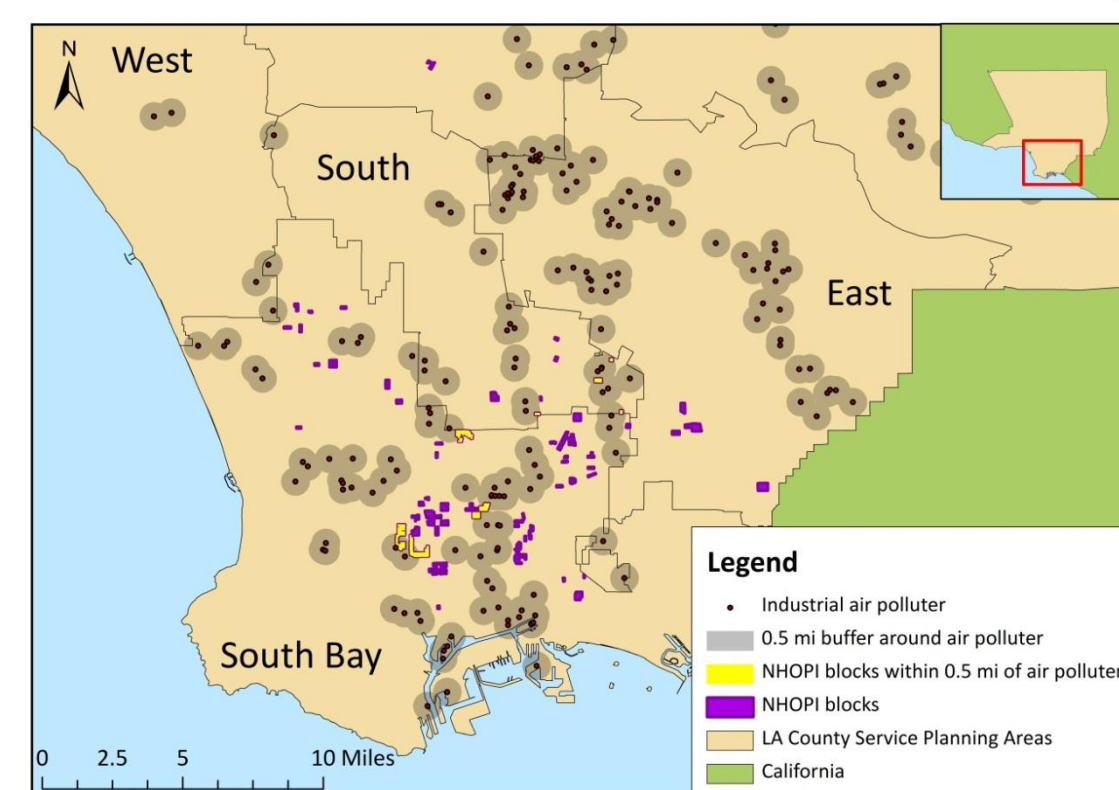
Data from 2010 U.S. Census and Los Angeles County Department of Regional Planning

NHOPI Blocks Within 1 mi of Toxic Waste in LA County



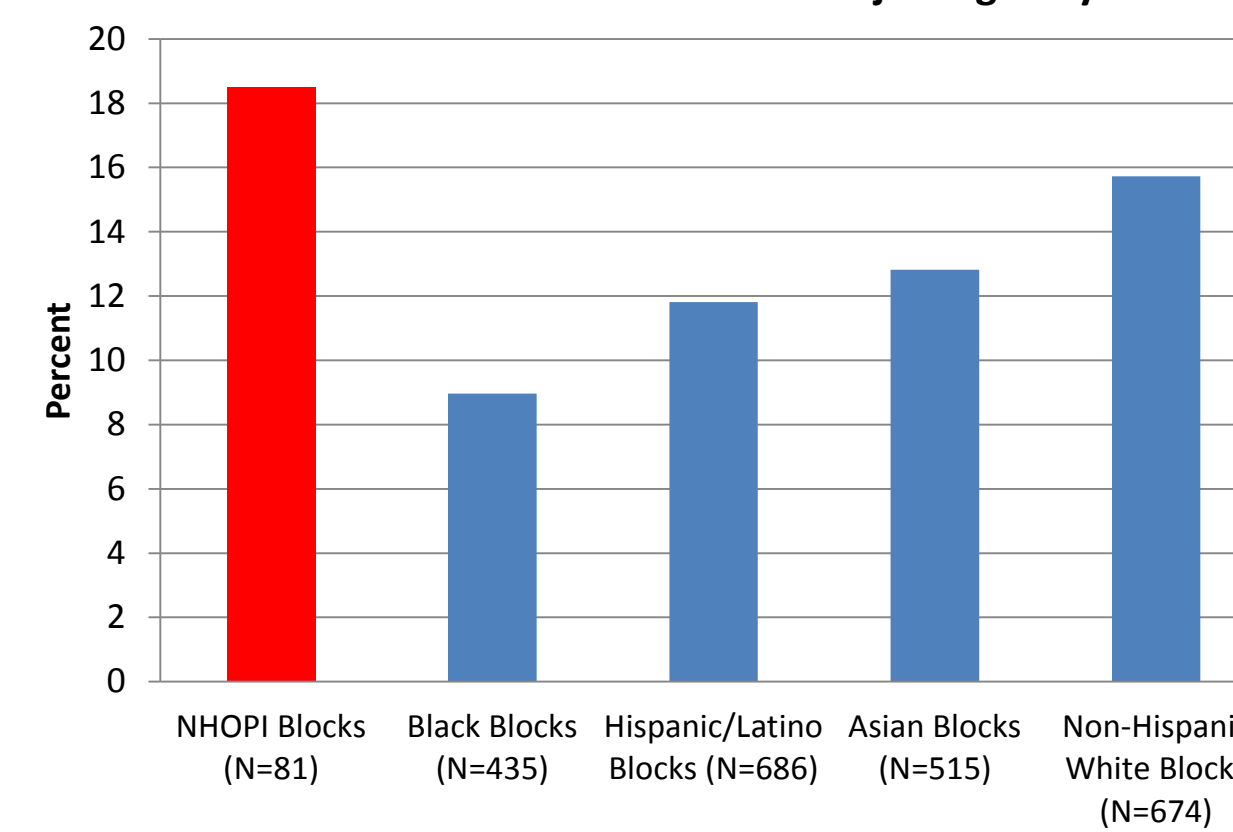
Data from 2010 US Census, Los Angeles County Department of Regional Planning and US EPA CERCLIS Public Access Database

NHOPI Blocks Within 0.5 mi of Industrial Air Polluter in LA County

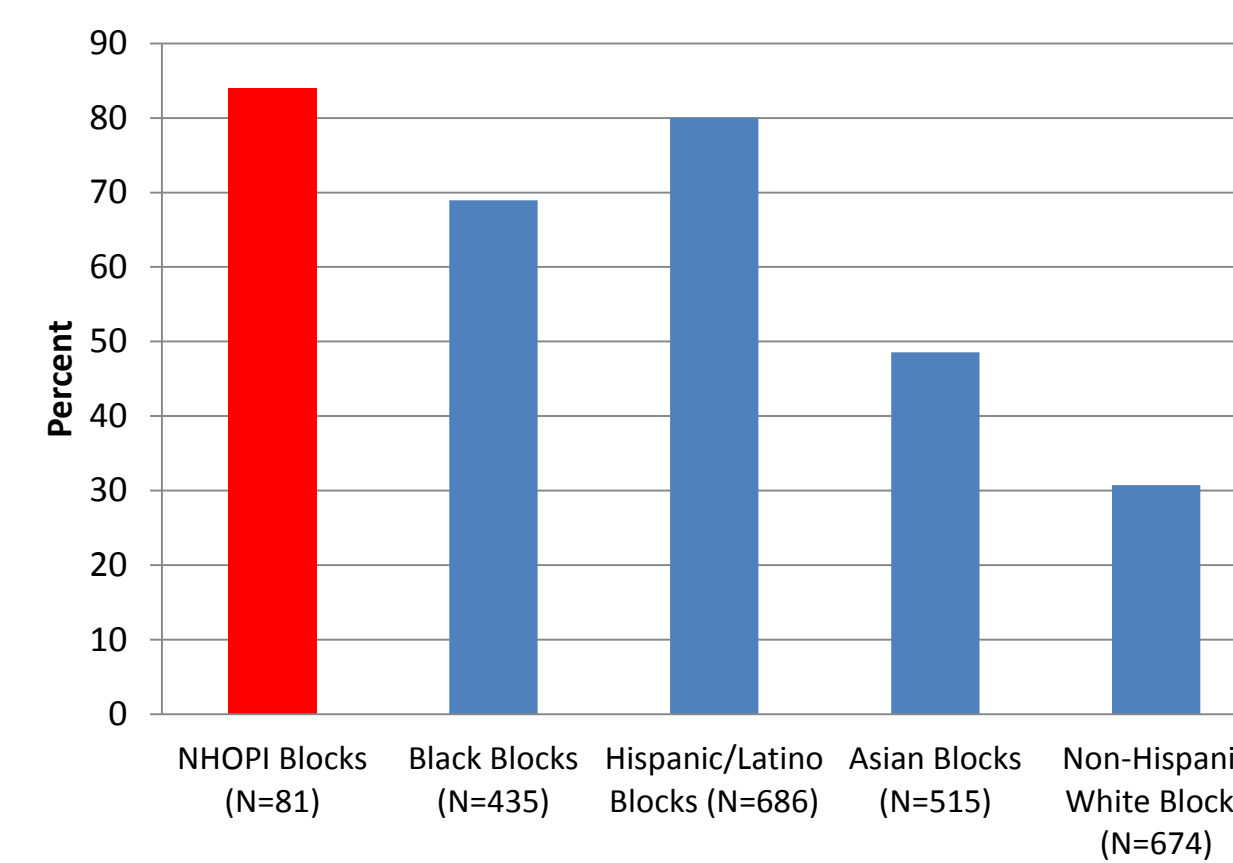


Data from 2010 US Census, Los Angeles County Department of Regional Planning, US EPA Toxic Release Inventory, and US EPA Risk-Screening Environmental Indicators Model

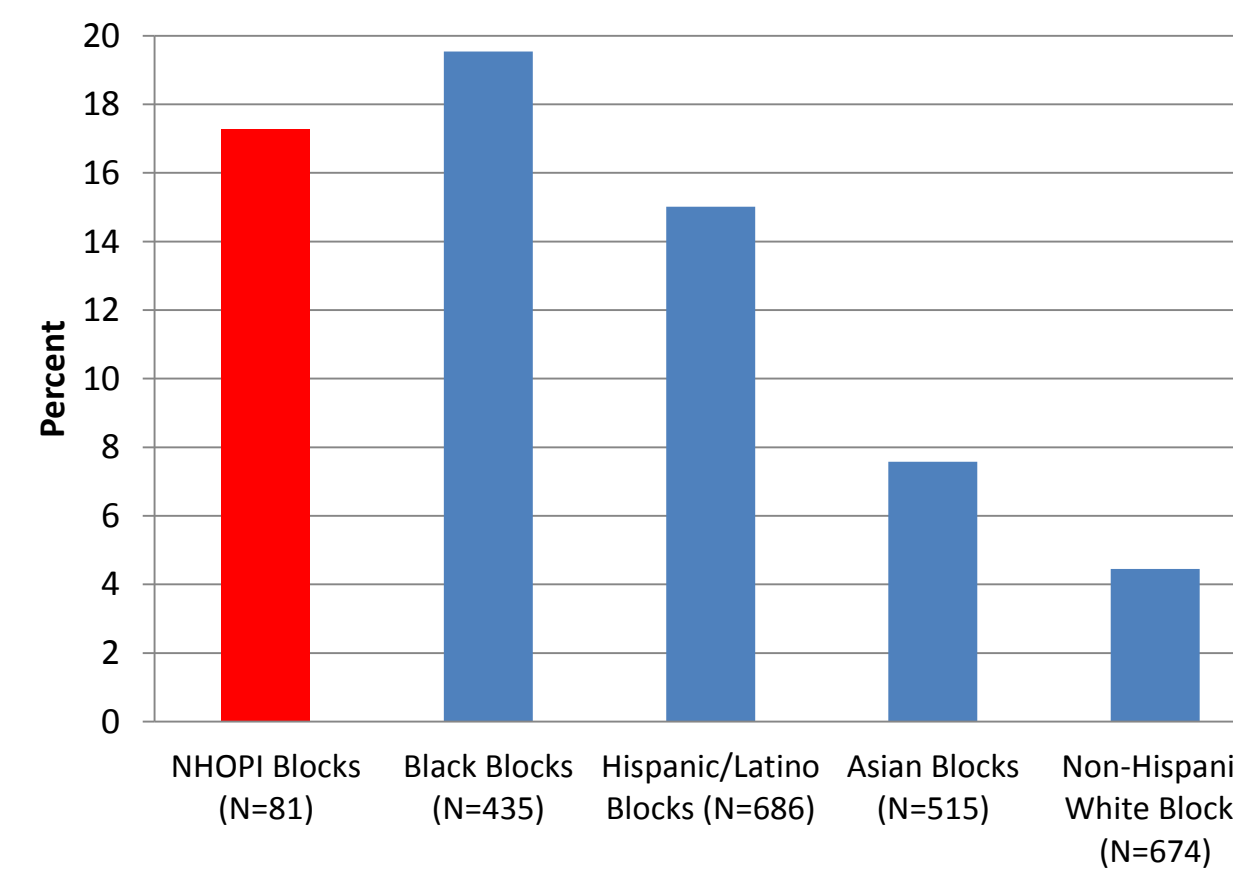
Percent Blocks Within 150 m of Major Highway



Percent Blocks Within 1 mi of Toxic Waste



Percent Blocks Within .5 mi of Industrial Air Polluter



Conclusion

This study provides evidence that NHOPI communities experience environmental injustice due to the disproportionately high rates of exposure to environmental hazards. Long-term exposure to various sources environmental toxins simultaneously may have bioaccumulative effects on NHOPI health. Although this study does not directly link environmental exposures to health outcomes, there is evidence to suggest that NHOPIs experience high environmental risk in Los Angeles County.

NHOPI is a racial group that has not been researched in the environmental justice movement. Future studies should explore the relationship between exposure to environmental hazards and health disparities for NHOPI populations. Policies that reduce environmental risk for minorities and increase health resources in highly affected areas may positively impact NHOPIs. Some grassroots organizations in Los Angeles County are currently taking steps to address environmental justice for NHOPIs.

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Acknowledgements / Contact

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