

TITLE

Reverse Environmental Justice: The Case of High-Voltage Electric Power Transmission Lines

THEME

Advance Environmental Public Health Science and Research

KEYWORDS

EMF, environmental justice, GIS

BACKGROUND

Environmental justice is usually meant to describe the observation that having low income and being African, Latino or Native American means disproportionate exposure to environmental toxins. Such associations have been shown for air pollutants, hazardous waste, water quality, noise, residential crowding, and housing quality. In a small pilot study we conducted several years ago, contrary to this relationship, we found in New Jersey that high-voltage electric power, transmission lines (HVTL), which some believe are risk factors for childhood leukemia, tended to exist in higher socioeconomic status regions with larger proportions of white residents than areas away from the HVTL.

OBJECTIVE(S)

The goal of this project was to link the location of HVTL with demographic data on a large scale, determine whether the residences of particular segments of the population had substantially higher exposures, and, if so, to describe the demographics of those subpopulations.

METHOD(S)

The location of all 345-kV and higher-voltage electric power transmission lines in New York State were mapped and overlaid on U.S. Census geographic units. Demographic data were extracted for three distance ranges from the lines (0–1,000 ft; 1001–2000 ft.; >2000 ft). Key demographic and socioeconomic status variables were summarized for each of the three HVTL proximity groups. Maps of key features were constructed to assess consistency of the patterns.

RESULT(S)

People living within 1000 feet of HVTL were more likely to be white, have higher incomes, own their houses, and, if renting, pay higher rents than those living within 1001 to 2000 feet of the HVTL, and even more so than those living further away. Interestingly, there was no pattern of age with proximity to HVTL.

DISCUSSION/RECOMMENDATION(S)

This study suggests that the concept of environmental justice may not apply to all environmental risk factors and that one must be cautious in generalizing. In addition, it shows the utility of using GIS methodology to summarize information for extremely large populations, often a challenging problem in epidemiology.

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