

Research on neighborhood effects on health in the United States: A systematic review of study characteristics

Arcaya et al (2016)

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Primary Objectives

- *Provide new data on the characteristics of a broad set of neighborhoods and health studies over the past 20 years as a resource to better understand the state of the “neighborhood effects on health” science*
- *Reflect on previous agendas to advance neighborhoods and health research, highlighting goals that have not yet been met by the existing literature*



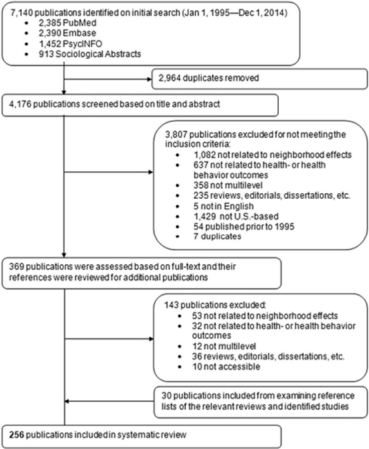


Fig. 1. Flowchart for study selection.



Central Themes

- Cross-Sectional studies are abundant
 - Other designs are much needed to address confounding
- Census Geographies abound
 - Are study hypotheses truly *a-priori*
 - Convenience sampling
- GIS-related topics are often overlooked, as other commonplace statistics
 - MAUP
 - 3+ Level Modelling
 - Spatial Relationships
- Concentration on just a few topics

Table 2

Characteristics of 256 empirical quantitative studies of neighborhood effects and health.

	No. of studies	% of total studies
Study design		
Cross-sectional	182	71.09
Longitudinal	48	18.75
Prospective cohort	11	4.30
Case-control	9	3.52
Experimental	4	1.56
Others	2	0.78
Neighborhood level sample size		
$N < 10$	1	0.39
$10 \leq N < 25$	9	3.52
$25 \leq N < 50$	31	12.11
$50 \leq N < 100$	62	24.22
$100 \leq N$	122	47.66
Not reported	31	12.11
Individual level sample size		
$0 < n < 1000$	50	19.53
$1000 \leq n < 5000$	94	36.72
$5000 \leq n < 10,000$	25	9.77
$10,000 \leq n < 20,000$	36	14.06
$20,000 \leq n$	51	19.92
Average number of individuals per neighborhood		
$0 < \text{avg} < 5$	36	14.06
$5 \leq \text{avg} < 10$	27	10.55
$10 \leq \text{avg} < 20$	45	17.58
$20 \leq \text{avg} < 50$	56	21.88
$50 \leq \text{avg} < 75$	10	3.91
$75 \leq \text{avg} < 100$	7	2.73
$100 \leq \text{avg}$	44	17.19
Neighborhood N not reported	31	12.11



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Table 3

Neighborhood level characteristics in 256 empirical quantitative studies of neighborhood effects and health.

	No. of studies	% of total studies
Multiple level of geographies		
1 level	241	94.14
2 or more levels	15	5.86
Neighborhood definition		
Census tracts	137	53.52
Block groups	52	20.31
Neighborhood clusters ^a	20	7.81
ZIP codes	19	7.42
Others ^b	17	6.64
More than one definition ^c	10	3.91
No description	1	0.39
Is neighborhood geographic vs spatial		
Geographic	205	80.08
Spatial	14	5.47
Both	37	14.45
Is neighborhood variable proximity vs prevalence		
Prevalence	231	90.23
Proximity	5	1.95
Both	20	7.81
Neighborhood level variables		
Census-based aggregated	110	42.97
Survey-based aggregated	31	12.11
Non-aggregated ^d	14	5.47
Combination ^e	98	38.28
Not reported	3	1.17
Explicit mention of MAUP/UGP		
None	246	96.09
UGP	2	0.78
MAUP	8	3.13



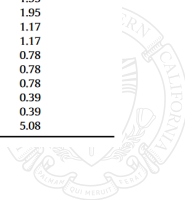
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Table 4

Ranking of common health outcomes explored in studies of neighborhood effects and health (N = 256).

Health outcome	No. of studies	% of total studies
BMI/obesity	51	19.92
Mental health	35	13.67
Pregnancy and birth outcomes	20	7.81
Cancer screening, diagnosis, and survival	19	7.42
Self-rated health	19	7.42
Physical activity	18	7.03
Alcohol and substance use	16	6.25
Mortality	15	5.86
Sexual health/STIs	14	5.47
Respiratory disease and asthma	7	2.73
Coronary heart disease	5	1.95
Smoking	5	1.95
Fruit and vegetable intake	5	1.95
Stress	3	1.17
Hospitalization	3	1.17
Tuberculosis	2	0.78
Diabetes	2	0.78
Medication adherence	2	0.78
Stroke	1	0.39
Violence	1	0.39
Others	13	5.08



Interdisciplinary Connections & Evaluation

Interdisciplinary Connections

- Incorporating Neighborhood elements connects people to space
 - GIS elements, Demography, Public Health Epidemiology

Evaluation

- Limited to multi-level modelling
- A good review of the current state of the literature
- Identifies common themes, areas for future progress



Questions

- What are your thoughts on the Cross-Sectional Observational study of neighborhood effects? Is it completely overplayed at this point?
- What are some other approaches to compliment/contrast/improve multi-level modelling with neighborhood effects?
- Is this field of work getting more technical and deductive?



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