

Supplementary Table S1. Search terms used to identify neighborhood-level SDOH measures in this scoping review study and previously published review studies

Review article	Search terms	Inclusion criteria	Exclusion criteria
<i>Present study</i>	Search terms for review studies including SDOH measures: In PubMed: (index OR indices) AND (neighborhood OR area OR community) AND (deprivation OR disadvantage OR adversity); limited to review study In Google Scholar: (index OR indices) + (neighborhood OR area OR community) + (deprivation OR disadvantage OR adversity)	Inclusion criteria for the review study - Including at least one of the SDOH measures met the following eligibility 1) U.S.-based measures 2) Neighborhood-level measures	
<i>Previous studies</i>			
Sorice et al. 2022	Neighborhood, neighborhood environment, social environment, contextual, neighborhood deprivation, neighborhood socioeconomic status, neighborhood SES, area-based SES, macro environment, and segregation (first terms) AND cancer control continuum, cancer + risk, incidence, screening, diagnosis, stage, treatment, survival, and mortality (second terms)		1) Did not include a cancer outcome 2) Reviews or theory-based papers 3) Using neighborhood socioeconomic (nSES) measures as a surrogate for individual-level SES 4) Investigating built environment, pollution, or environmental contaminants, not nSES 5) Focusing on access to care or supportive care 6) Reporting all-cause mortality, not cancer mortality 7) Conducting outside the U.S. 8) Investigating broader geographies than census tracts 9) Did not report relevant statistics (e.g., effect sizes).
Trinidad et al. 2022	Three key parameters based on the guiding question for the scoping review: index, neighborhood, and deprivation. Index was assessed by the terms index or indices. Neighborhood was assessed by the terms neighborhood, community, census tract, or ZIP code. Deprivation was assessed by the terms deprivation, disparity, vulnerability, distress, or disadvantage.		1) Geographic area assessed - not truly an area-level measure - It is limited to only urban areas - Ranked counties in quartiles within states - Smallest geographic unit was the county level 2) Only Applicable to Specific State/Locality 3) Single-Use - Not based concretely on prior work and not subsequently cited 4) Individual survey data - Built from individual survey data that is not widely available - Individual survey of relationship characteristics / social networks - Built from self-reported questionnaire data - Individual survey of social characteristics 5) Inconsistent input factors

				- Both of these indices were excluded as they do not use the same factors each time they are created but are instead based on consistent means of factor selection. 6) Redundant 7) Alternate measures
Zelenina et al. 2022		Deprivation indices developed for the geographic areas of North America, Europe, Australia and New Zealand		
Sui et al. 2022	Combination of study design (e.g., 'longitudinal', 'cohort', 'follow-up'), geographic scope (e.g., 'neighborhood', 'community', 'residential'), environment exposure (e.g., 'natural environment', 'built environment', 'social environment'), and mental health (e.g., 'mental health', 'mental disorder', 'depression', 'anxiety')	1) The populations of the selected studies were composed of adults aged ≥ 18 years. 2) The participants in these studies were initially assessed for their depression, anxiety, and common mental disorder levels. 3) Each study, at minimum, also performed at least one follow-up assessment. 4) Studies that quantitatively (including environmental perceptions measured by Likert scales) assessed aspects of the social, natural, built outdoor environments of studied residential neighborhoods.		
Conti et al. 2022	("breast cancer" or "breast neoplasm" or "breast neoplasms" or "breast carcinoma" or "breast tumor" or "breast tumors" or "cancer of the breast") AND ("accessibility" or "geographic access" or "spatial access" or "residence characteristics" or "residence characteristic" or "neighborhood characteristic" or "neighborhood characteristics") AND ("SES" or "low-income" or "low income" or "low SES" or "low socioeconomic" or "socioeconomic status" or "poor" or "poverty" or "disparity" or "disparities" or "deprived" or "disadvantaged" or "low resources" or "poverty area" or "deprivation" or "social class" or "socioeconomic factors" or "insecurity" or "precariousness").		1) SES characteristics were demographic such as age or ethnicity or used as covariates. 2) Studies provided only descriptive analyses of level of access to healthcare facilities or neighborhood SES characteristics 3) Study focused on the likelihood of not using the closest facilities 4) Studies used a proxy measure of geographic access such as density, car ownership or urban contexts	
Kim et al. 2021	(Neighbor* OR Communit* OR Environ* OR "Residence Characteristics") AND ("Socioeconomic Factors" OR socioeconomic OR SES OR poverty OR impoverished OR unemployed* OR income OR affluen* OR advantaged OR advantage OR deprivation OR occupation* OR "Standard of Living" OR "Living Standard" OR "living standards" OR inequality	1) nSES as an exposure 2) Individual SES as a covariate 3) Stroke incidence (hemorrhagic or ischemic) as an outcome 4) Quantitative study 5) Peer-reviewed article, 6) Dissertation, or government report	1) Articles focusing on a non-high-income country 2) Articles using only transient ischemic attack as an outcome 3) Articles examining associations within the stroke population (i.e., stroke incidence is not an outcome, but the population of interest) 4) Review articles 5) Ecological studies	

	OR wealth) AND (“stroke” OR stroke OR strokes OR “Cerebrovascular Accident” OR “cerebrovascular accidents” OR CVA OR “Cerebrovascular Apoplexy” OR “Vascular Accident” OR “vascular accidents” OR “Apoplexy” OR “Cerebral hemorrhage” OR “Subarachnoid hemorrhage”).		
Tomfohr-Madsen et al. 2020		1) Studies had to be empirical and include medically and psychologically well children <19 years old, 2) A subjective or objective measure of sleep duration that was extractable, and 3) A measure of nSES as identified or defined by the study that was extractable. 4) Studies must have reported that a relationship between sleep duration and nSES was analyzed.	1) Does not measure association between sleep and socioeconomic factors 2) Only measured association between sleep and family SES 3) Does not measure neighborhood SES 4) Does not measure child sleep 5) Irretrievable - Unavailable in English 6) Grey literature 7) Sample includes participants >18 years old 8) Not an empirical study 9) Does not include extractable outcomes 10) Duplicate article 11) Sample includes unwell children: medical 12) No baseline measure of sleep 13) Authors were unable to provide required information for inclusion 14) Sample includes participants with special conditions 15) Irretrievable - Unavailable to obtain
Patrice Smith et al. 2018	Breast cancer, breast cancer outcomes, African American, residential/neighborhood characteristics ^a	Eligible studies included in the review met the following criteria 3) Study design: cohort studies, prospective studies, observational studies, case-control studies, cross-sectional studies 4) Population: studies included adult women of African American race 5) Outcome: breast cancer incidence/risk, stage at diagnosis, survival and mortality 6) Exposure: assessed a neighborhood or residential factor	1) Articles written in languages other than English 2) Review papers 3) Non-peer reviewed 4) Articles such as conference proceedings or abstracts 5) Studies exclusively focused on rural areas 6) Assessment of individual SES 7) Male breast cancer
Dageun et al. 2016	Heart Defects [Title/Abstract] or Heart Defect [Title/Abstract] or Heart Diseases [Title/ Abstract] or Heart Disease [Title/Abstract] or cleft [Title/Abstract] or clefts [Title/Abstract] or neural tube defects [Title/Abstract] or neural tube defect [Title/Abstract] and (birth or births or pregnancy or congenital [Title/Abstract] and (deprivation [Title] or socio-economic [Title] or socioeconomic [Title] or socioeconomics [Title] or inequality [Title] or inequalities [Title] or contextual [Title] or disadvantage [Title] or disadvantages [Title] or	1) Peer-reviewed papers written in English 2) Articles published after 1990 without restriction on geographical location	1) Papers presenting non-original studies 2) Papers performed on an adult population rather than on newborns or infants 3) Papers investigated death or hospitalization among the population having congenital malformations 4) Papers dealt with health system care and particularly the impact made by medical care during pregnancy on the risk of congenital malformation

	disadvantaged [Title] or advantage [Title] or advantages [Title] or advantaged [Title] or income [Title] or employment [Title] or unemployment [Title] or neighbourhood [Title] or neighborhood [Title] or rural [Title] or urban [Title] or rural and urban [Title] or lifestyle [Title] or socio-occupational [Title] or insurance [Title] or educational [Title] or social [Title] or healthcare [Title])			5) Papers were interested in the perception of risk related to congenital malformations 6) Papers considered socioeconomic factors measured at individual level only 7) The rural/urban indicators used could not be related to socioeconomic level 8) The control group was defined as babies with a congenital malformation 9) The studies used individual socioeconomic indicators that had not been detected after reading only the abstract
Wu et al. 2015	(neighbourhood* OR neighborhood* OR "community environment" OR "community level" OR "living environment" OR "residential environment") AND (cognitive function* OR cognitive decline OR cognitive impair* OR dementia OR Alzheimer*)	1) Cognitive function was the main outcome 2) Community was defined as a geographical area which is close to participant 3) The study measured the characteristics of community environment		1) Exclude the title containing: - Children, adolescent, youth - Biomarkers, - Brain images - Health service and caregiving - Nursing home, clinical, institution - Others such as physical activity, quality of life, self-rated health 2) Abstract/ full text review - Animal study - Overview - Duplicates - Without clear definition of community - Other focuses
Trinidad et al. 2022 ^b	-	-	-	-
Bilal et al. 2018 ^b	-	-	-	-

^a Example of the search terms in PubMed: ("breast cancer" OR "breast neoplasm" OR "breast neoplasms" OR "breast carcinoma" OR "breast tumor" OR "breast tumors" OR "cancer of the breast" OR "mammary cancer" OR "mammary cancers" OR "neoplasm of breast" OR "cancer of breast" OR "mammary carcinoma" OR "mammary neoplasm" OR "luminal A breast cancer" OR "basal breast cancer" OR "breast cancer subtype" OR "breast cancer outcome" OR "breast cancer outcomes" OR "breast cancer mortality" OR "breast cancer survival" OR "breast cancer death" OR Breast cancer[MeSH]) AND ("African American" OR "African Americans" OR "black" OR "blacks" OR "Afro-American" OR "Afro-Americans" OR "African-American" OR "African-Americans" OR "Negro*" OR "Negro American*" OR African American[MeSH]) AND ("residence characteristics" OR "residence characteristic" OR "neighborhood characteristic" OR "neighborhood characteristics" OR "community" OR "communities" OR "domestic characteristic" OR "domestic characteristics" OR "residential selection" OR "residential selections" OR "place of birth" OR "birth place" OR "living arrangements" OR "living arrangement" OR "arrangement of living" OR "community" OR "communities" OR "vicinity" OR "zone" OR "quarter" OR "region" OR "district" OR "hood" OR "hoods" OR "ghetto" OR "ghettos" OR "projects" OR "PJ's" OR "PJs" OR "home" OR "hometown" OR "dwelling" OR "dwellings" OR "apartment" OR "apartments" OR "apartment complex" OR "apartment complexes" OR "low-income" OR "low income" OR "low SES" OR "low socioeconomic" OR "low socioeconomic status" OR "public housing" OR "section 8" OR "housing project" OR "housing projects" OR "housing authority" OR "housing authorities" OR "gain territories" OR "high crime" OR "high crime area" OR "urban" OR "urban core" OR "city" OR "inner-city" OR "inner cities" OR "town" OR "poverty" OR "poverty-stricken" OR "poverty stricken" OR "needy" OR "need" OR "want" OR "disfavored" OR "impoverished" OR "destitute" OR "badly off" OR "deficient" OR "hard up" OR "inferior" OR "indigent" OR "poor" OR "lack" OR "unfortunate" OR "disparity" OR "disparities" OR "underprivileged" OR "underrepresented" OR "deprived" OR "disadvantaged" OR "scarcity" OR "scarce" OR "rundown" OR "paucity" OR "metropolitan" OR "metropolis" OR "low resources" OR "Standard of Living" OR "land tenure" OR "municipalities" OR "poverty area" OR "racial segregation" OR "residential segregation" OR "neighborhood racial composition" OR "environment factors" OR Residence

Characteristics[MeSH]) AND (“effect” OR “effects” OR “impacts” OR “impact” OR “predict” OR “prediction” OR “prediction” OR “predicts” OR “result” OR “results” OR “consequence” OR “consequences” OR “significance” OR “significant”)

^b Qualitative review studies

Supplementary Table S2. References of included 85 neighborhood-level SDOH measures

#	Authors, year (key reference)	Specific name of the measures (for Group A)
<i>Group A. Measures with the specific name</i>		
A1	Singh. 2003 [1, 2]	Area Deprivation Index (ADI)
A2	Diez-Roux et al., 2001 [3]	Neighborhood Socioeconomic Index
A3	Dubowitz et al., 2008 [4]	Neighborhood Socioeconomic Status
A4	Lian et al., 2011 [5]	Neighborhood Socioeconomic Deprivation Index
A5	Klassen et al., 2004 [6]	Social Resources Index
A6	Messer et al., 2006 [7]	Deprivation Index
A7	Signorello et al., 2014 [8]	Neighborhood Deprivation Index (NDI)
A8	Butler et al., 2013 [9]	Social Deprivation Index (SDI)
A9	Wheeler et al., 2017 [10]	Socioeconomic Status Index
A10	Yost et al., 2001 [11]	Yost index
A11	Andrews et al., 2020 [12]	Neighborhood Deprivation Index (NDI)
A12	Sampson et al., 1997 [13]	Neighborhood Concentrated Disadvantage
A13	Ogojiaku et al., 2020 [14]	Health Opportunity Index (HOI)
A14	López-De Fede et al., 2016 [15]	Palmetto Small-Area Deprivation Index
A15	Brokamp et al., 2019 [16]	Deprivation Index
A16	Trinidad et al., 2022 [17]	Deprivation Index
A17	Kolak et al., 2020 [18]	Multidimensional Social Determinants of Health (SDOH) index
A18	Peyvandi et al., 2020 [19]	Environmental Exposure Index (EEI)
A19	Maizlish et al., 2019 [20]	California Healthy Places Index (HPI)
A20	Acevedo-Garcia et al., 2014 [21]	Child Opportunity Index
A21	Bonito et al., 2008 [22]	AHRQ SES Index
A22	Cutter, Ash, and Emrich. 2014 [23]	Baseline Resilience Indicators for Communities (BRIC)
A23	US Census Bureau, Department of Commerce 2019 [24]	Community Resilience Estimates (CRE)
A24	Acevedo-Garcia et al., 2020 [25]	Child Opportunity Index 2.0
A25	Yu et al., 2014 [26]	Composite Index of Socioeconomic Status
A26	Tracy et al., 2019 [27]	Distressed Communities Index (DCI)
A27	Rickless et al. 2021 [28]	Minority Health Social Vulnerability Index
A28	Glassman et al., 2021 [29]	Multidimensional Deprivation Index (MDI)
A29	Miles et al., 2016 [30]	Neighborhood Socioeconomic Status (NSES)
A30	Ash et al., 2017 [31]	Neighborhood Stress Score (NSS7)
A31	Child Trend, Opportunity Nation, and Forum for Youth Investment 2019 [32]	Opportunity Index
A32	Joint Economic Committee. 2018 [33]	Social Capital Index
A33	Cutter, Boruff, and Shirley 2003 [34]	Social Vulnerability to Environmental Hazards Index
A34	Flanagan et al., 2011 [35]	Social Vulnerability Index (SVI)
A35	Nagaraja 2015 [36]	Townsend Index adapted for the United States
A36	Huang et al., 2018 [37]	Community Need Index (CNI)
A37	Dalve et al., 2021 [38]	Neighborhood socioeconomic disadvantage index
A38	Moody et al., 2016 [39]	Modified Darden-Kamel Composite Socioeconomic Index
A39	Slotman et al., 2020 [40]	Neighborhood Deprivation Index
A40	Krieger et al., 2016 [41]	Index of Concentration at the Extremes (ICE)
A41	Saulsberry et al., 2022 [42]	Social Vulnerability Matrix (SVM)
A42	Montie et al., 2004 [43]	Economic Hardship Index
<i>Group B. Measures without a specific name</i>		
B1	Beardslee et al., 2021 [44]	
B2	Schootman et al., 2006 [45]	
B3	Beard et al., 2009 [46]	
B4	O'donnell et al., 2015 [47]	

B5	Brusilovskiy et al., 2012 [48]
B6	Matthews et al., 2010 [49]
B7	Yang et al., 2011 [50]
B8	Mair et al., 2015 [51]
B9	Dai et al., 2010 [52]
B10	McLafferty et al., 2013 [53]
B11	Cagney et al., 2009 [54]
B12	Freedman et al., 2011 [55]
B13	Bagley et al., 2018 [56]
B14	Spilsbury et al., 2006 [57]
B15	King et al., 2016 [58]
B16	King et al., 2011 [59]
B17	Smith et al., 2017 [60]
B18	Barrette et al., 2008 [61]
B19	Mandelblatt et al., 1995 [62]
B20	Warner et al., 2010 [63]
B21	Mirowsky et al., 2017 [64]
B22	Garcia et al., 2015 [65]
B23	Corriere et al., 2014 [66]
B24	Wasserman et al., 1998 [67]
B25	Lupo et al., 2015 [68]
B26	Shih et al., 2011 [69]
B27	Aneshensel et al., 2011 [70]
B28	Sisco and Marsiske 2012 [71]
B29	Clarke et al., 2012 [72]
B30	Banegas et al., 2014 [73]
B31	Beyer et al., 2019 [74]
B32	Sampson et al., 1999 [75]
B33	Cho et al., 2011 [76]
B34	Browning et al., 2002 [77]
B35	Coogan et al., 2010 [78]
B36	Doubeni et al., 2012 [79]
B37	Johnson et al., 2016 [80]
B38	Mojica et al., 2015 [81]
B39	Palmer et al., 2012 [82]
B40	Reitzel et al., 2012 [83]
B41	Yang et al., 2014 [84]
B42	Zhang et al., 2019 [85]
B43	Glass et al., 2006 [86]

Supplementary Table S3. Summary of domains, sub-domains, and example measurement indicators of included neighborhood-level SDOH measures

Domain and sub-domain	Data source	Included measures ^a	Example measurement indicators
<i>Income/ wealth</i>			
Poverty	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate 2013 Massachusetts Medicaid data	- Measures in Group A (n=33) - A1, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12, A14, A15, A16, A17, A20, A21, A24, A25, A26, A27, A28, A29, A30, A31, A33, A34, A36, A37, A38, A39, A41, and A42 - Measures in Group B (n=34) - B1, B2, B3, B4, B6, B7, B8, B9, B10, B12, B13, B14, B15, B16, B18, B19, B20, B21, B22, B24, B25, B26, B27, B29, B30, B32, B33, B34, B36, B37, B40, B41, B42, and B43	% Households/ families/ individuals level of 'below' vs 'at or above' 100%, 150%, 200% of poverty line
Income	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate - Metropolitan statistical areas-level socioeconomic factors	- Measures in Group A (n=24) - A1, A2, A3, A4, A5, A6, A7, A9, A11, A14, A15, A16, A19, A21, A23, A24, A25, A26, A29, A31, A33, A38, A39, and A41 - Measures in Group B (n=27) - B3, B4, B5, B7, B8, B9, B10, B11, B12, B13, B16, B17, B18, B20, B23, B26, B28, B29, B30, B31, B32, B35, B36, B38, B39, B41, and B42	- Median households /families/ individuals income - Households /families/ individuals income less than specific amount (e.g., \$50,000 annually)
Public assistance	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate 2013 Massachusetts Medicaid data	- Measures in Group A (n=15) - A3, A4, A6, A7, A9, A11, A12, A15, A16, A20, A24, A30, A33, A37, and A39 - Measures in Group B (n=22) - B1, B2, B3, B4, B6, B7, B11, B12, B13, B15, B16, B18, B21, B26, B27, B29, B32, B34, B36, B37, B38, and B42	% Households/ individuals receiving public assistance
Home value	- Decennial US Census - ACS 5-year estimate	- Measures in Group A (n=13) - A1, A2, A4, A5, A7, A10, A11, A21, A25, A33, A38, A39, and A41 - Measures in Group B (n=12) - B5, B9, B11, B16, B17, B20, B23, B29, B30, B35, B39, and B41	Median home value
Unearned income	- Decennial US Census - ACS 5-year estimate	- Measures in Group A (n=4) - A2, A11, A25, and A39 - Measures in Group B (n=4) - B8, B23, B35, and B39	% Households with interest, dividend, or rental income
Capita income	- Decennial US Census - ACS 5-year estimate	- Measures in Group A (n=7) - A5, A9, A17, A27, A33, A34, and A42 - Measures in Group B (n=1) - B43	Median per capita income

Income disparity	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate	- Measures in Group A (n=6) - A1, A9, A13, A22, A31, and A40	Gini index of income equality
<i>Migration</i>			
Residence period	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate	- Measures in Group A (n=4) - A4, A5, A9, and A12 - Measures in Group B (n=9) - B2, B3, B4, B6, B7, B12, B13, B32, and B34	% Persons living in the same residence since (≥ 1 year, or ≥ 5 years, since 1985 and 1995)
Population movement	NA	- Measures in Group A (n=1) - A13	Population churning index
<i>Employment</i>			
Labor force employment	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate 2019 Bureau of Labor Statistics Census data - Metropolitan statistical areas-level socioeconomic factors 2013 Massachusetts Medicaid data	- Measures in Group A (n=34) - A1, A3, A4, A5, A6, A7, A8, A10, A11, A12, A13, A14, A17, A19, A20, A21, A22, A23, A24, A25, A26, A27, A28, A29, A30, A31, A33, A34, A35, A36, A37, A38, A39, and A42 - Measures in Group B (n=32) - B1, B2, B3, B4, B6, B7, B8, B9, B12, B14, B15, B16, B18, B19, B20, B21, B22, B24, B25, B26, B27, B29, B30, B31, B33, B34, B36, B38, B40, B41, B42, B43	% Civilian labor force who are unemployed or employed - By gender, or age group (e.g., 16 and over, and 25-64)
Occupation	- Decennial US Census - ACS 5-year estimate 2010 Quarterly Census of Employment and Wages, Bureau of Labor Statistics	- Measures in Group A (n=15) - A1, A2, A4, A5, A6, A7, A10, A11, A22, A24, A25, A33, A38, A39, and A41 - Measures in Group B (n=23) - B3, B4, B6, B7, B8, B9, B16, B17, B18, B20, B21, B23, B24, B25, B28, B29, B30, B32, B35, B36, B39, B41, and B43	% Occupation of employed persons in a managerial, executive, or professional specialty % Working class
Employment accessibility	- ACS 5-year estimate 2010 Smart Location Database 2009 US Census Bureau, ZIP Business Patterns 2009–2010 County Business Patterns, Census Bureau	- Measures in Group A (n=4) - A19, A20, A22, and A26	Combined employment density for retail, entertainment, and educational uses
<i>Housing</i>			
Housing occupancy	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate	- Measures in Group A (n=23) - A1, A4, A5, A8, A9, A11, A12, A14, A15, A16, A17, A19, A20, A22, A24, A25, A26, A33, A35, A36, A38, A39, and A41 - Measures in Group B (n=18) - B2, B3, B4, B6, B7, B8, B9, B10, B12, B13, B16, B21, B22, B24, B25, B32, B34, and B43	% Owner-occupied housing units % Renter-occupied households % Vacant housing units
Occupants per room	- Decennial US Census - ACS 5-year estimate	Measures in Group A (n=17)	% Households with more than one person per room

	ACS 1-year estimate	- A1, A4, A5, A6, A7, A8, A17, A19, A21, A23, A25, A27, A28, A33, A34, A35, and A42 • Measures in Group B (n=7) - B4, B6, B7, B9, B10, B24, and B25	
Mortgage/ rent	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate 2010, US Department of Housing and Urban Development, Neighborhood Stabilization Program 2010-2014 Comprehensive Housing Assessment System	• Measures in Group A (n=11) - A1, A7, A9, A10, A17, A19, A20, A25, A31, A33, and A38 • Measures in Group B (n=4) - B9, B20, B30, and B41	• Median gross rent • Median monthly mortgage • % Households spending less than 30 percent of their income on housing-related costs
Housing amenity	- Decennial US Census - ACS 5-year estimate 2010-2014 Comprehensive Housing Assessment System	• Measures in Group A (n=5) - A1, A11, A19, A25, and A39 • Measures in Group B (n=4) - B2, B5, B10, and B22	• Housing units that lack basic amenities • % Occupied housing units without complete plumbing • % Households with complete kitchen facilities and plumbing • The median number of rooms in the household
Housing structure	- Decennial US Census - ACS 5-year estimate	• Measures in Group A (n=4) - A22, A27, A34, and A41	• Persons in group quarters • Multi-unit housing structures • Mobile homes • % Housing units not manufactured homes
Year structure built	- ACS 5-year estimate 2000 Topologically Integrated Geographic Encoding and Referencing system	• Measures in Group A (n=1) - A22 • Measures in Group B (n=1) - B12	• % Housing units built prior to 1970 or after 2000
<i>Transportation</i>			
Vehicle available	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate 2013 Massachusetts Medicaid data	• Measures in Group A (n=17) - A1, A4, A5, A7, A8, A14, A17, A19, A22, A23, A25, A27, A30, A33, A34, A35, and A38 • Measures in Group B (n=7) - B8, B9, B10, B12, B36, B40, and B42	• % Households without a motor vehicle
Commuting	ACS 5-year estimate	• Measures in Group A (n=2) - A19, and A24	• % Workers (aged ≥ 16) commuting by walking, cycling, or transit • % Workers commuting more than one hour one way
<i>Immigrant population</i>			
Linguistical isolation	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate	• Measures in Group A (n=7) - A17, A22, A23, A27, A33, A34, and A36 • Measures in Group B (n=6) - B9, B10, B12, B18, B33, and B38	• % Population proficient English speakers
Place of birth	- Decennial US Census - ACS 5-year estimate	• Measures in Group A (n=3) - A5, A12, and A22	• % Foreign-born

		- Measures in Group B (n=7) - B3, B12, B18, B32, B33, B34, and B38	
<i>Social environment</i>			
Crime	2002 Uniform Crime Reporting Program Data 2004 CrimeBase database administered by the Cartographic Modeling Lab 2004 tract-level crime data from the Philadelphia Police Department 2008-2014 FBI, Uniform Crime Reporting Statistics 2016 Bureau of Justice Statistics - Baltimore CitiStat - Baltimore Police Dept - The tract-level crime data for 2004 from the Philadelphia Police Department - US Department of Justice, Federal Bureau of Investigation Uniform Crime Reporting - County Health Rankings analysis of data from the U.S. Department of Justice, Federal Bureau of Investigation Criminal Justice Information Service	- Measures in Group A (n=2) - A31, and A32 - Measures in Group B (n=5) - B5, B6, B7, B12, and B43	- Violent crimes per 100,000 911 calls per person per year - Number of people incarcerated in jail or prison per 100,000 population 18 and older
Social supports ^b	2010 US Census 2009–2010 County Business Patterns 2007 Census of Agriculture, Department of Agriculture 2010 Citizen Corps Councils, Federal Emergency Management Agency 2013 Volunteers and Preparedness Training, American Red Cross 2013 and 2015 Civic Engagement Supplement to the November Current Population Survey - US Census Bureau, Current Population Survey and Volunteering Supplement	- Measures in Group A (n=3) - A22, A31, and A32	- Red Cross training workshop participants per 10,000 persons % Adults (ages 18 and older) who reported they volunteered during the previous year (national and state-level only) - Civic organizations per 10,000 persons
Religion	2010 US Religion Census: Religious Congregations and Membership Study 12/2015 Internal Revenue Service, Business Master File	- Measures in Group A (n=2) - A22, and A32	Religious congregations per 1,000
Confidence in institutions	Volunteer Supplement to the November 2013/ Current Population Survey	- Measures in Group A (n=1) - A32	Confidence in Institutions Sub-Index
Government services/ politics	2010 US Census 2012-2016 ACS 2005, 2012 Current Population Estimate 2007 USA Counties Database 2010 Tiger/Line 2010 National Atlas, US Geological Survey 2012 Statewide Database, University of California, Berkeley - Election Administration and Voting Survey - The Pennsylvania Spatial Data Access website	- Measures in Group A (n=4) - A19, A22, A31, and A32 - Measures in Group B (n=1) - B5	% Voting age population participating in presidential election - Proximity of county seat to state capital. - Governments and special districts per 10,000 persons

	US Census Bureau, Voting and Registration		
Community rescue program	2010 US Census 2000–2009 Hazard Mitigation Grant Program 2010 National Flood Insurance Program 2010 Map the Meal Gap, Feeding America	- Measures in Group A (n=1) - A22	- Ten-year average per capita spending for mitigation projects % Housing units covered by National Flood Insurance Program
<i>Racial composition</i>			
Race/ Ethnicity	- Decennial US Census - ACS 5-year estimate	- Measures in Group A (n=10) - A4, A5, A9, A12, A17, A27, A33, A34, A36, and A40 - Measures in Group B (n=13) - B2, B3, B8, B9, B10, B12, B15, B18, B21, B27, B32, B34, and B36	% Specific Race/ ethnicity
Segregation	Decennial US Census	- Measures in Group A (n=2) - A13, and A19 - Measures in Group B (n=3) - B9, B12, and B37	Isolation/segregation index for Black/Hispanic population
<i>Telecommunication</i>			
Telephone available	- Decennial US Census - ACS 5-year estimate	- Measures in Group A (n=7) - A1, A5, A11, A22, A25, A39, and A41 - Measures in Group B (n=1) - B8	% Households without a telephone
Internet available	- Decennial US Census - ACS 5-year estimate 2010 Broadband Internet Access, Federal Communications Commission	- Measures in Group A (n=5) - A22, A23, A27, A31, and A41	% Households/ population with access to broadband internet service
<i>Demographics/ family structure</i>			
Female householder	- Decennial US Census - ACS 5-year estimate	- Measures in Group A (n=13) - A3, A4, A6, A7, A11, A12, A14, A29, A32, A33, A36, A37, and A39 - Measures in Group B (n=18) - B2, B4, B6, B7, B9, B10, B14, B15, B18, B26, B29, B32, B34, B35, B36, B38, B39, and B40	% Female-headed families % Households with children that are headed by a female
Single-parent	- Decennial US Census - ACS 5-year estimate	- Measures in Group A (n=11) - A1, A8, A17, A19, A24, A27, A30, A32, A33, A34, and A41 - Measures in Group B (n=3) - B21, B40, and B43	% Single-parent households with children aged <18 years % Family households that are single-parent headed
Number of caregiver	ACS 1-year estimate	- Measures in Group A (n=2) - A23, and A41	Single or zero caregiver household - only one or no individuals living in the household who are 18–64

Marital status	- Decennial US Census - ACS 5-year estimate	- Measures in Group A (n=3) - A14, A32, and A41 - Measures in Group B (n=3) - B1, B37, and B43	% Married
Household size	2012 ESRI based on 2010 Census	- Measures in Group A (n=1) - A9	Average household size
Age subgroups	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate 2012 ESRI	- Measures in Group A (n=9) - A4, A9, A12, A17, A22, A23, A27, A33, A34, and A42 - Measures in Group B (n=7) - B2, B10, B15, B29, B32, B34, and B37	% Population below or over the specific years of age - Median age
Gender	Decennial US Census	- Measures in Group A (n=1) - A33	% Female
Population density	Decennial US Census	- Measures in Group A (n=1) - A13 - Measures in Group B (n=4) - B3, B12, B21, and B32	Population density (persons per mile)
Change of the population size	Decennial US Census 2005 and 2012 Current Population Estimate	- Measures in Group A (n=1) - A22	Population changes over the previous five-year period
<i>Education</i>			
Education attainment	- Decennial US Census - ACS 5-year estimate - ACS 1-year estimate 2010–2011 school year, State Departments of Education 2013 Massachusetts Medicaid data - EDFacts, GS and Stanford Education Data Archive - Metropolitan statistical areas-level socioeconomic factors - National Center for Education Statistics OERCD	- Measures in Group A (n=36) - A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11, A13, A14, A15, A16, A17, A19, A20, A21, A22, A23, A24, A25, A26, A27, A28, A29, A30, A31, A33, A34, A36, A38, A39, A41, and A42 - Measures in Group B (n=35) - B2, B3, B4, B6, B7, B8, B9, B10, B11, B12, B14, B16, B17, B18, B21, B22, B23, B24, B25, B26, B27, B28, B29, B30, B31, B32, B35, B36, B37, B38, B39, B40, B41, B42, and B43	% Population aged ≥ 25 years and at least a high school diploma % Ninth graders graduating from high school on time % Population aged ≥ 25 years with complete college - Education index (weighted school years)
School enrollment	- Decennial US Census - ACS 5-year estimate ACS 1-year estimate	- Measures in Group A (n=5) - A14, A19, A20, A24, and A31	% Children aged 3 years and older attending preschool % Teenagers aged 16–19 not enrolled and not a high school graduate % Population aged 18–24 enrolled in college within 25-mile radius
Academic proficiency	- EDFacts, GS and Stanford Education Data Archive 2010–2011 school year, State Departments of Education	- Measures in Group A (n=2) - A20, and A24	- Student math proficiency level - Student reading proficiency level
Education accessibility	- Decennial US Census 2012–2013 State Early Childhood Care and Education Licensing Database	- Measures in Group A (n=3) - A20, A22, and A24	- Proximity to high-quality early childhood education centers - Proximity to licensed early childhood education centers

	• 2009–2010 National Center for Education Statistics, Department of Education • 2012–2013 National Association for the Education of Young Children Accredited Program Database • 2012–2013 and 2017–2019 Childcare licensing agency of each US state • 2009–2010 and 2015–2016 school years of National Center for Education Statistics Common Core of Data • 2012–2013 and 2017–2019 National Association for the Education of Young Children • 2012–2013 and 2017–2019 National Association for the Education of Young Children • National Center for Education Statistics OCRCD		• Number of early childhood education centers within a 5-mile radius • Number of National Association for the Education of Young Children accredited centers within a 5-mile radius • % Teachers in their first and second year • Public schools per 10,000 persons
School poverty rate	• 2010–2011 US Department of Education, National Center for Education Statistics, Common Core of Data	• Measures in Group A (n=2) - A20, and A24	• % Eligibility for free or reduced-price lunch
<i>Health/ care services</i>			
Insurance	• Decennial US Census • ACS 5-year estimate • ACS 1-year estimate 2010 Small Area Health Insurance Estimates, Census Bureau	• Measures in Group A (n=14) - A9, A15, A16, A17, A19, A22, A23, A24, A27, A28, A31, A33, A36, and A41	• % People with health insurance
Health care accessibility	• Decennial US Census • ACS 5-year estimate • 2003 Area Resource File • 2005–2006 data from the Pennsylvania Department of Health • 2007 County and City Data Book • 2010 Million Dollar Database, Dun and Bradstreet • 2011 ESRI Business Analyst • 2017 US Department of Homeland Security Homeland Infrastructure • 2018 Health Resources and Services Administration • Bureau of Health Workforce, Area Health Resources Files	• Measures in Group A (n=6) - A13, A20, A22, A27, A31, and A33 • Measures in Group B (n=2) - B6, and B12	• Proximity to healthcare facilities • Urgent care clinics • Psychosocial support facilities per 10,000 persons • Physicians per 10,000 persons • Number of licensed medical doctors per 1,000 population • Number of primary care physicians (per 100,000 population) • Pharmacies • Nursing home residents per capita
Disability	• Decennial US Census • ACS 5-year estimate • ACS 1-year estimate	• Measures in Group A (n=7) - A17, A22, A23, A27, A28, A34, and A41	• % Civilian noninstitutionalized population with a disability
Health condition	• 2014–2016 Interactive Atlas of Heart Disease and Stroke, CDC • 2016 US Diabetes Surveillance System • 2014 Institute for Health Metrics and Evaluation • CDC WONDER • 2000 Medicaid in Philadelphia	• Measures in Group A (n=2) - A27, and A31 • Measures in Group B (n=1) - B5	• Cardiovascular disease mortality per 100,000 • Chronic respiratory disease mortality per 100,000 • Density of Serious Mental Illness (SMI) population • Diagnosed diabetes rate per 100,000 • Obesity rate per 100,000
Vaccination	• 2005–2006 data from the Pennsylvania Department of Health	• Measures in Group B (n=1) - B6	• Number of patients receiving flu vaccine

Physical environmental

Walkability/ road condition	• United States Environmental Protection Agency • 2000 Topologically Integrated Geographic Encoding and Referencing system • 2010 National Atlas, US Geological Survey • 2010 Tiger/Line • 2010 Railroad Network, Oak Ridge National Laboratory • Pennsylvania Department of Transportation • Dept. of Public Works	• Measures in Group A (n=2) - A22, and A24 • Measures in Group B (n=3) - B6, B12, and B43	• EPA Walkability Index • Major road egress points per 10,000 persons • % The number of nodes per square mile • Rail miles per square mile
Living facility	• Decennial US Census 2009-2010 County Business Patterns • County Business Patterns and Population Estimates Program • 2014 California Department of Alcoholic Beverage Control • MD State liquor control board	• Measures in Group A (n=3) - A19, A22, and A31 • Measures in Group B (n=1) - B43	• Hotels/motels per 10,000 persons • Number of banking institutions per 10,000 residents • % Population residing within 1-quarter mile of an off-site sales alcohol outlet • Number of liquor stores
Food insecurity	• Decennial US Census • 2011 ESRI Business Analyst • 2012 US Presidential Election, The Guardian • 2002 Economic Census • 2010 Million Dollar Database, Dun and Bradstreet • USDA Food Access Research Atlas, United States Department of Agriculture Economic Research Service • 2015 US Department of Agriculture • US Census Bureau, County Business Patterns and Population Estimates Program	• Measures in Group A (n=7) - A13, A19, A20, A22, A24, A31, and A41 • Measures in Group B (n=1) - B12	• Food accessibility index (low access to grocery stores, supermarkets, and other suppliers of healthy foods) • % Healthy food retailers located within a half mile) • The number of food stores, restaurants, and housing units per square • Number of grocery stores and produce vendors (per 10,000 population)
Rurality	• Decennial US Census	• Measures in Group B (n=1) - B21	• Urban environment
Air quality	• California Communities Environmental Health Screening Tool, version 3.0 • 2012 CalEnviroScreen 3.0 • 2012-2014 CalEnviroScreen 3.0 • CDC, National Environmental Public Health Tracking Network • Environmental Protection Agency's Air Quality System	• Measures in Group A (n=3) - A18, A19, and A24 • Measures in Group B (n=1) - B12	• Air quality measured by ozone (main ingredient in smog) and particulate matter 2.5 • Measure of summertime ozone averages • Annual mean concentration of particulate matter $\leq 2.5 \mu\text{m}$ across over three years • Quarterly measures of particulate matter of 10 pm or less
Water quality	• California Communities Environmental Health Screening Tool, version 3.0 • 2005-2013 CalEnviroScreen 3.0 • 2005 Water Supply Stress Index, Forest Service	• Measures in Group A (n=3) - A18, A19, and A22	• Drinking water contaminant index for selected contaminants
Industrial hazards	• California Communities Environmental Health Screening Tool, version 3.0 • 2010 US Environmental Protection Agency, Toxic Release Inventory • Environmental Protection Agency	• Measures in Group A (n=4) - A18, A20, A22, and A24	• Toxic release from facilities • Index of toxic chemicals released by industrial facilities • Average number of Superfund sites within a 2-mile radius

	• Superfund National Priorities List compiled by the Environmental Protection Agency • 2010 US Census/ 2010 Nuclear Power Plants Database, Nuclear Regulatory Commission		• % Population within 10 miles of nuclear power plant
Natural disaster	• 2000–2009 Presidential Disaster Declarations Database, Federal Emergency Management Agency • 2000–2009 Spatial Hazard Events and Losses Database for the US (SHELDUS), University South Carolina Hazards and Vulnerability Research Institute	• Measures in Group A (n=1) - A22	• Presidential disaster declarations divided by number of loss-causing hazard events
Climate	• CDC, National Environmental Public Health Tracking Network, North American Land Data Assimilation System	• Measures in Group A (n=1) - A24	• Summer days with maximum temperature above 90F
Greenspace/ wetland	• 2011 National Land Cover Database • 2012 GreenInfo Network • 2011 ESRI Business Analyst • 2006 National Land Cover Dataset, US Geological Survey • CDC • 2010 Tiger/Line/ 2006 National Land Cover Dataset, US Geological Survey	• Measures in Group A (n=4) - A19, A20, A22, and A24	• Population-weighted percentage of the census tract area with tree canopy • Percentage of population living within a half-mile of a park, beach, or open space >1 acre • Average percent perviousness • % Land in wetlands
Electricity consumption	• 2010 Electricity Consumption, Energy Information Administration	• Measures in Group A (n=1) - A22	• Megawatt hours per energy consumer
<i>Other</i>			
Response rate to census	• Decennial US Census	• Measures in Group A (n=1) - A32	• Mail-back response rates for 2010 census

^a For the reference citation of each measure, see Supplementary Table S2

^b Outreach, civic organization, Community Supported Agriculture, and citizen corps program

Supplementary Table S4. Original domain names of the Group A measures and the availability of overall and domain scores

Measure ^a	Domains labeled/named by the measure developer	Scores availability (overall / domain)	Website ^b
A1. Area Deprivation Index		Y / N	https://www.neighborhoodatlas.medicine.wisc.edu/
A2. Neighborhood Socioeconomic Index	• Income/ wealth - Median household income (dollars) - Percent of households receiving dividends, interest, or rental income - Percent of households receiving public assistance - Median home value (dollars) - Percent of families with incomes below the poverty level • Employment/ occupation - Percent in a management, business, science, or arts occupation - Percent unemployed • Education - Percent with a high school degree or higher - Percent with a college degree or higher • Housing conditions - Percent of households that are female-headed with any children under 18 - Percent of housing units that are owner-occupied - Percent of households without a telephone - Percent of households without complete plumbing facilities	N / N	
A3. Neighborhood Socioeconomic Status	-	N / N	
A4. Neighborhood Socioeconomic Deprivation Index	• Education - % Total population with less than a high school education - % Total population with a college degree • Occupation - % Unemployed males aged 20 years - % Unemployed females aged 20 years - % white-collar employment - % Low social class • Housing - % Household ownership - % Vacant households - % Households with 1 person per room - % Female-headed households with dependent children - Median value of all owner-occupied households, dollars - % Households on public assistance - % Households with no car • Income and poverty - % Households with low income (1999) - % Households with income 400% the US median household income - Median household income in 1999 - % Population below federal poverty line • Racial composition - % non-Hispanic black - % Hispanic • Residential stability - % Residents aged 65 years - % Living in the same residence since 1995	N / N	

A5. Social Resources Index	• Housing - Median sale price of the house - % Persons living in “crowded” residences, defined as more than one person per room - Median sale price of the house - Housing value percentile rank - % Owner-occupied units • Income - Median household income - Median family income - Median per capita income • Population composition - % White - % Black - % Born outside the US - % Age 5 or older not living in the same residence for at least 5 years • Social class - % High school graduates among persons ≥25 - % Employed in white-collar jobs • Material deprivation - % Households without a car - Households without a telephone - % Persons 16 and older who were unemployed - % Persons living in “crowded” residences, defined as more than one person per room - % Persons living in poverty	N / N	
A6. Deprivation Index (Messer et al.)	• Poverty - % Households below/at poverty line - % Female-headed households with dependents - % Households earning less than \$30,000 per year - % Households on public assistance • Occupation - % Males in management and professional occupations • Housing - % Homes with > 1 person/room • Employment - % Unemployed • Education - % Less than a high school education	Y / N	https://cran.r-project.org/web/packages/ndi/vignettes/vignette.html ^c
A7. Neighborhood Deprivation Index (NDI, Signorello et al.) ^d	• Poverty • Housing • Occupation • Employment • Education • Residential stability • Racial composition	N / N	
A8. Social Deprivation Index	-	Y / N	https://www.graham-center.org/maps-data-tools/social-deprivation-index.html
A9. Socioeconomic Status Index	-	N / N	
A10. Yost index	-	N / N	
A11. Neighborhood Deprivation Index (NDI, Andrew et al)	• Employment/ occupation - % Employed in management - % Unemployment • Education - % High school graduates - % Bachelor’s degree or higher • Housing conditions - % Households without telephone - % Households without plumbing • Income/ wealth	Y / N	https://github.com/dblr/ndi ^c

	- Household income - Home value - % Family poverty - % Public assistance - % Female-headed household - % Owner occupied housing units - % Housing units receiving interest/dividends/rental income		
A12. Neighborhood Concentrated Disadvantage	• Concentrated disadvantage - Below poverty line - On public assistance - Female-headed families - Unemployed - Less than age 18 - % Black • Immigrant concentration - % Latino - % Foreign-born • Residential stability - Same houses as in 1985 - Owner-occupied house	N / N	
A13. Health Opportunity Index	• Environmental profile - Affordability index - Access to care index - Walkability - Employment access - Population-weighted density - Environmental quality index • Consumer profile - Education index - Food accessibility index - Townsend index • Economic profile - Job participation - Segregation index - Income inequality • Population profile - Population churning index	N / N	
A14. Palmetto Small-Area Deprivation Index	-	N / N	
A15. Deprivation Index (Brokamp et al)	-	Y / N	https://github.com/geomarker-io/dep_index
A16. Deprivation index (Trinidad et al)	-	N / N	
A17. Multidimensional Social Determinants of Health (SDOH) Index	-	N / N	
A18. Environmental Exposure Index (EEI)	-	N / N	
A19. California Healthy Places Index (HPI)	• Economics - Percentage of population with household income >200% of the federal poverty level - Percentage of population aged 25-64 employed - Median household income • Education - Percentage of population aged >25 with a bachelor's degree or higher - Percentage of teenagers aged 15-17 enrolled in school - Percentage of children aged 3 or 4 enrolled in preschool • Health care access - Percentage of adults aged 18-64 currently insured • Housing - Percentage of housing units occupied by property owners	Y / N	https://www.healthyplacesindex.org/

	- Percentage of households with complete kitchen facilities and plumbing - Percentage of low-income homeowners paying >50% of income on housing costs - Percentage of low-income renter households paying >50% of income on housing costs - Percentage of households with ≤1 occupant per room • Neighborhood conditions - Percentage of population living within a half-mile of a park, beach, or open space >1 acre - Population-weighted percentage of the census tract area with tree canopy - Percentage of urban and small-town population residing <1 half-mile from a supermarket or large grocery store or rural population living <1 mile from a supermarket or large grocery store - Percentage of population residing within 1-quarter mile of an off-site sales alcohol outlet - Combined employment density for retail, entertainment, and educational uses (jobs per acre) • Pollution/clean environment - Spatial distribution of gridded diesel particulate-matter emissions from on road and non-road sources for a summer day in July 2012 (kg/d) - Cal EnviroScreen 3.0 drinking water contaminant index for selected contaminants - Mean of summer months (May-October) of the daily maximum 8-h ozone concentration - Annual mean concentration of particulate matter 2.5 µm across (PM2.5; average of quarterly means, µg/m3) over 3y • Social - Percentage of registered voters who voted in the 2012 general election - Percentage of family households with children aged <18 with 2 parents • Transportation - Percentage of households with access to an automobile - Percentage of workers (aged ≥16) commuting by walking, cycling, or transit (excluding working from home) • Racial residential integration - Index of dissimilarity using county percentage of black persons as a parity reference and aggregating census block differences to census tracts	
A20. Child Opportunity Index	• Educational opportunities - School poverty rate - Student math proficiency level - Student reading proficiency level - Proximity to licensed early childhood education centers - Proximity to high-quality early childhood education centers - Early childhood education participation - High school graduation rate - Adult educational attainment • Health and environmental opportunities - Proximity to health care facilities - Retail healthy food environment index - Proximity to toxic waste release sites - Volume of nearby toxic waste release - Proximity to parks and open spaces - Housing vacancy rate • Social and economic opportunities - Foreclosure rate - Poverty rate - Unemployment rate - Public assistance rate - Proximity to employment	N / N

A21. AHRQ SES Index	-	N / N	
A22. Baseline Resilience Indicators for Communities	• Social resilience - Negative absolute difference between % population with college education and % population with less than high school education - % Population below 65 years of age - % Households with at least one vehicle - % Households with telephone service available - % Population proficient English speakers - % Population without sensory, physical, or mental disability - % Population under age 65 with health insurance - Psychosocial support facilities per 10,000 persons - Food security rate - Physicians per 10,000 persons • Economic resilience - % Owner-occupied housing units - % Labor force employed - Negative Gini coefficient - % Employees not in farming, fishing, forestry, extractive industry, or tourism - Negative absolute difference between male and female median income - Ratio of large to small businesses - Large retail stores per 10,000 persons - % Labor force employed by federal government • Community capital - % Population not foreign-born persons who came to US within previous five years - % Population born in state of current residence - % Voting age population participating in presidential election - Persons affiliated with a religious organization per 10,000 persons - Civic organizations per 10,000 persons - Red cross volunteers per 10,000 persons - Red cross training workshop participants per 10,000 persons • Institutional resilience - Ten-year average per capita spending for mitigation projects - % Housing units covered by National Flood Insurance Program - Governments and special districts per 10,000 persons - Presidential disaster declarations divided by number of loss-causing hazard events from 2000 to 2009 - % Population in communities with Citizen Corps program - Proximity of county seat to state capital - Proximity of county seat to nearest county seat within a Metropolitan Statistical Area - Population change over previous five year period - % Population within 10 miles of nuclear power plant - Crop insurance policies per square mile • Housing/infrastructural resilience - % Housing units not manufactured homes - % Vacant units that are for rent - Hospital beds per 10,000 persons - Major road egress points per 10,000 persons - % Housing units built prior to 1970 or after 2000 - Hotels/motels per 10,000 persons - Public schools per 10,000 persons - Rail miles per square mile - % Population with access to broadband internet service	Y / Y	https://experience.arcgis.com/experience/376770c1113943b6b5f6b58ff1c2fb5c/page/BRIC/

	• Environmental resilience - Farms marketing products through Community Supported Agriculture per 10,000 persons - Land in wetlands - Megawatt hours per energy consumer - Average percent perviousness - Inverted water supply stress index		
A23. Census Bureau Community Resilience Estimates	-	Y / N	https://www.census.gov/programs-surveys/community-resilience-estimates/data/datasets.html
A24. Child Opportunity Index 2.0	• Education domain - Number of early childhood education centers within a 5-mile radius - Number of NAEYC accredited centers within a 5-mile radius - % 3- and 4-year-olds enrolled in nursery school, preschool or kindergarten - % Third graders scoring proficient on standardized reading test - % Third graders scoring proficient on standardized math tests - % Ninth graders graduating from high school on time - Ratio of students enrolled in at least one AP course to the number of 11th and 12th graders - 18–24-year-old enrolled in college within 25-mile radius - % Students in elementary schools eligible for free or reduced-price lunches - % Teachers in their first and second year - % Adults ages 25 and over with a college degree or higher • Health and environment domain - % Households without a car located further than a half-mile from the nearest supermarket - % Impenetrable surface areas such as rooftops, roads or parking lots - EPA Walkability Index - % Housing units that are vacant - Average number of Superfund sites within a 2-mile radius - Index of toxic chemicals released by industrial facilities (Environmental Protection Agency) - Mean estimated microparticle concentration - Mean estimated 8-hour average ozone concentration - Summer days with maximum temperature above 90F - % Individuals ages 0–64 with health insurance coverage • Social and economic domain - % Adults ages 25–54 who are employed (2008-2012 and 2013-2017 ACS) - % Workers commuting more than one hour one way - % Individuals living in households with incomes below 100% of the federal poverty threshold - % Households receiving cash public assistance or Food Stamps/Supplemental Nutrition Assistance Program - Median income of all households - % Owner-occupied housing units - % Individuals ages 16 and over employed in management, business, financial, computer, engineering, science, education, legal, community, service, health care practitioner, health technology, arts, and media occupations - % Family households that are single-parent headed	Y / Y	https://www.diversitydatakids.org/child-opportunity-index

A25. Composite Index of Socioeconomic Status	• Occupation - % Working class • Unemployed - % Aged ≥ 16 years who are unemployed • Poverty - % Persons below 150 % of poverty line - % Persons below poverty line • Income - Median household income - % Total household income in the area derived from interest, dividends, and net rent • Education - % aged ≥ 25 years and ≤ 12th grade of education - % aged ≥ 25 years and ≥ 4 years of education - Education index • House - % Home worth ≥ \$400 k - Median house value - Median rent • Ownership - % Home ownership - % Car ownership - % No telephone • Living crowdedness - % Households with more than one person per room - % Households with only one room - % Households without kitchen - % Households without private plumbing	N / N	
A26. Distressed Communities Index	-	Y / N	https://eig.org/distressed-communities/
A27. Minority Health Social Vulnerability Index	• Socioeconomic Status - Persons below poverty - Persons unemployed - Per capita income - Persons age 25+ with no high school diploma • Household Composition & Disability - Persons aged 65 and older - Persons aged 17 and younger - Civilian noninstitutionalized population with a disability - Single parent household with children under 18 • Minority Status & Language - American Indian/Alaska Native - Asian - African American - Native Hawaiian/Pacific Islander - Hispanic or Latinx - Some other race alone - Spanish speakers who speak English less than “very well” - Chinese speakers who speak English less than “very well” - Vietnamese speakers who speak English less than “very well” - Korean speakers who speak English less than “very well” - Russian speakers who speak English less than “very well” • Housing Type & Transportation - Multi-unit housing structures - Mobile homes - Crowding - Households with no vehicle available - Persons in group quarters • Health Care Infrastructure & Access - Hospitals - Urgent care clinics - Pharmacies - Primary care physicians	Y / Y	https://www.minorityhealth.hhs.gov/minority-health-svi/

	- Persons without health insurance • Medical Vulnerability - Cardiovascular disease mortality per 100,000 - Diagnosed diabetes rate per 100,000 - Obesity rate per 100,000 - Chronic respiratory disease mortality per 100,000 - Persons without internet access		
A28. Multidimensional Deprivation Index	• Standard of living - In poverty according to the official poverty measure • Education - Aged 19 or older and without a high school diploma or GED • Health - For people under age 65: Lacked health insurance. - For people age 65 and over: Lacked health insurance or reported at least two disabilities. • Economic security - For people under age 65: Aged 18 and older and unemployed at the time of the survey; OR lived in a household in which average household hours worked OR average household weeks worked for working-age adults (age 18 to 64, not in school) was less than 20 hours a week or less than 26 weeks a year, respectively. - For people age 65 and over: Unemployed at the time of the survey; OR worked less than 20 hours a week OR less than 26 weeks a year AND had minimal retirement income • Housing Quality - Lived in a housing unit with more than two people per bedroom or lived in a shelter • Neighborhood quality - Lived in a deprived block group as measured by the Area Deprivation Index: all block groups with an ADI score greater than 90	N / N	
A29. Neighborhood Socioeconomic Status	-	N / N	
A30. Neighborhood Stress Score	-	N / N	
A31. Opportunity Index	• Economy - Unemployment rate (percentage of the population ages 16 and older who are not working but available for and seeking work) - Median household income (in 2010 dollars) - Percentage of the population below the federal poverty level - 80/20 ratio (ratio of household income at the 80th percentile to that at the 20th percentile) - Number of banking institutions . . . per 10,000 residents - Percentage of households spending less than 30 percent of their income on housing-related costs • Education - Percentage of 3- and 4-year-olds attending preschool - On-time high school graduation rate - Percentage of adults ages 25 and older with an associate's degree or higher • Health - Percentage of infants born weighing less than 5.5 pounds - Percentage of the population (under age 65) without health insurance coverage - Deaths attributed to alcohol or drug poisoning, or suicide • Community - Percentage of adults (ages 18 and older) who reported they volunteered during the previous year - Percentage of adults ages 18 and older who are registered to vote	Y / Y	https://opportunityindex.org/

	- Percentage of youth (ages 16–24) not in school and not working - Incidents of violent crime reported to law enforcement agencies - Number of grocery stores and produce vendors - Number of people incarcerated in jail or prison		
A32. Social Capital Index	• Family unity subindex - % Births in past year to women who were unmarried - % Women ages 35–44 who are currently married - % Own children living in a single-parent family • Community health subindex - Informal Civil Society Sub-Index [taken from state-level resources and combines domains like volunteering, attending meetings, working with neighbors, served on a committee, took part in demonstration] - Religious congregations per 1,000 - Registered non-religious non-profits per 1,000 • Institutional health subindex - Average (over 2012 and 2016) of votes in the presidential election per citizen age 18+ - Confidence in Institutions Sub-Index: [combination of] some confidence in corporations, in the media, and in public schools - Mail-back response rates for 2010 census • Collective efficacy - Violent crimes per 100,000	Y / N	https://www.jec.senate.gov/public/index.cfm/republicans/sci/
A33. Social Vulnerability to Environmental Hazards Index	-	Y / N	https://sc.edu/study/colleges_schools/artsandsciences/centers_and_institutes/hvri/data_and_resources/sovi/index.php
A34. Social Vulnerability Index	• Socioeconomic status - Percent individuals below poverty - Percent civilian unemployed - Per capita income - Persons age 25+ with no high school diploma • Household composition/disability - Persons aged 65 and older - Persons aged 17 and younger - Noninstitutionalized persons older than age 5 with a disability - Single parent households with children under 18 • Minority status/language - American Indian/Alaska Native, Asian, African American, Native Hawaiian/Pacific Islander, Hispanic or Latinx, some other race alone - Persons age 5 or older who speak English “less than well” • Housing/transportation - Multi-unit housing structures - Mobile homes - Crowding - Person in group quarters - Households with no vehicle available	Y / Y	https://www.atsdr.cdc.gov/placeandhealth/svi/index.html
A35. Townsend Index Adapted for the United States	-	N / N	
A36. Community Need Index	• Income - % Households below poverty line with head household age ≥ 65 - % Families with children under 18 below the poverty line - % Single female headed families with children below poverty line • Culture/Language - % Population aged > 5 years that speaks English poorly or not at all	N / N	

	- % Population that is minority • Education - % Population > 25 years without a high school diploma • Housing - % Households renting their home • Insurance coverage - % Population without health insurance			
A37. Neighborhood Socioeconomic Disadvantage Index	-		N / N	
A38. Modified Darden-Kamel Composite Socioeconomic Index	-		N / N	
A39. Neighborhood Deprivation Index (NDI, Slotman et al.)	• Wealth and income - Median household income (dollars) - Percent of households receiving dividends, interest, or rental income - Percent of households receiving public assistance - Median home value (dollars) - Percent of families with incomes below the poverty level • Education - Percent with a high school degree or higher - Percent with a college degree or higher • Occupation - Percent in a management, business, science, or arts occupation - Percent unemployed • Housing conditions - Percent of households that are female headed with any children under 18 - Percent of housing units that are owner occupied	Y / N	https://gis.cancer.gov/research/files.html#soc-dep	
A40. Index of Concentration at the Extremes (ICE)	• Income: Economic residential segregation - ((n of “white non-Hispanic” persons)-(n of “black non-Hispanic” persons))/n of persons with race/ethnicity data • Race/Ethnicity: Racial residential segregation - ((n of “white non-Hispanic” high-income persons)-(n of “black alone” low-income persons))/n of persons with race/ethnicity and household income data • Income+race/ethnicity: Racialized economic residential segregation - ((n of persons in high-income households)-(n of persons in low-income households)/total population with household income data	N / N		
A41. Social Vulnerability Matrix	• Social - Percentage of civilian veterans with a disability (ages 18–64) - Percentage of families with children that are single-parent families - Percentage of population divorced or separated (ages 15 and over) - Percentage of children living with a grandparent householder (ages 17 and under) - Percentage of households with any internet connection - Percentage of households without a computer - Percentage of households with a smartphone with no other type of computing device • Economic - Percentage of employed working in finance and insurance, real estate, and rental and leasing - Percentage of employed working in professional, scientific, management, administrative, and waste management services - Percentage of population with income to poverty ratio: 1.25–1.99	Y / Y	https://adaptivetestingtechnologies.com/sdoh/	

	- Median household income (in dollars, inflation-adjusted to file data year) • Education - Percentage of population with a bachelor's degree (ages 25 and over) - Percentage of population with a master's or professional school degree or doctorate (ages 25 and over) - Percentage of population with only high school diploma (ages 25 and over) - Percentage of population with less than high school education (ages 25 and over) • Infrastructure - Median home value of owner-occupied housing units - Percentage of housing units that are mobile homes - Percentage of housing units vacant - Convenience stores per 1000 people • Health Care - Percentage of population with any Medicaid/means-tested public health insurance coverage - Percentage of population with any private health insurance coverage - Percentage of population with employer-based health insurance - Percentage of population with Medicare, Medicaid, TRICARE/military, U.S. Department of Veterans Affairs (VA) coverage only - Percentage of population with no health insurance coverage	
A42. Economic Hardship Index	• Unemployment - Proportion of the population ages 16-64 that are unemployed • Dependency - Proportion of the population younger than age 18 or older than age 64 • Education - Proportion of the population ages 25 and older without a high school degree • Income - Per capita income • Crowded housing - Proportion of occupied by housing units with more than 1 person per room • Poverty - Proportion of persons living below the federal poverty level	N /N

^a For the reference citation of each measure, see Supplementary Table S2

^b The URL accessible as of April 2023. Cost-free for all measures, except for A26 (Distress Communities Index)

^c Not a website provided by the developer of measure

^d Content not stated in the original study

Supplementary Table S5. Citation counts of 42 measures with a specific name included in Group A

#	Specific name of measure ^a	Publication year	Total count of WOS citations ^b	Citations per year ^c	RCR
A1	Area Deprivation Index ^d	2003	856	45.1	54.5
A2	Neighborhood Socioeconomic Index	2001	219	10.4	7.6
A3	Neighborhood Socioeconomic Status	2008	192	13.7	8.9
A4	Neighborhood Socioeconomic Deprivation Index	2011	43	3.9	2.0
A5	Social Resources Index	2004	30	1.7	1.26
A6	Deprivation Index (Messer et al.)	2006	356	22.3	14.6
A7	Neighborhood Deprivation Index (Signorello et al.)	2014	49	6.1	3.0
A8	Social Deprivation Index	2012	138	13.8	10.4
A9	Neighborhood Deprivation Index	2017	10	2.0	1.1
A10	Yost Index	2001	539	25.7	15.9
A11	Neighborhood Deprivation Index (Andrew et al.)	2020	10	5.0	2.7
A12	Neighborhood Concentrated Disadvantage	1997	1939	77.6	119.8
A13	Health Opportunity Index	2020	9	4.5	1.1
A14	Palmetto Small-Area Deprivation Index	2016	10	1.7	1.1
A15	Deprivation Index (Brokamp et al.)	2016	38	6.3	7.5
A16	Deprivation Index (Trinidad et al.)	2022	0	-	4.5
A17	Multidimensional Social Determinants of Health Index	2020	56	28.0	10.9
A18	Environmental Exposure Index	2020	13	6.5	4.1
A19	California Healthy Places Index	2019	12	4.0	1.9
A20	Child Opportunity Index	2014	55	6.9	5.9
A21	AHRQ SES Index ^{e, f}	2008	11	0.8	-
A22	Baseline Resilience Indicators for Communities	2014	343	42.9	-
A23	Census Bureau Community Resilience Estimates ^{f, g}	2019	0	0	-
A24	Child Opportunity Index 2.0	2020	40	20.0	10.6
A25	Composite Index of Socioeconomic Status	2014	96	12.0	5.3
A26	Distressed Communities Index	2019	15	5.0	3.3
A27	Minority Health Social Vulnerability Index ^{e, h}	2021	1	1.0	-
A28	Multidimensional Deprivation Index ^{e, i}	2021	0	0	-
A29	Neighborhood Socioeconomic Status	2016	14	2.3	1.3
A30	Neighborhood Stress Score	2017	76	15.2	4.9
A31	Opportunity Index ^{e, j}	2019	0	0	-
A32	Social Capital Index ^{e, k}	2018	0	0	-
A33	Social Vulnerability to Environmental Hazards Index	2003	1661	87.4	-
A34	Social Vulnerability Index	2011	396	36.0	-
A35	Townsend Index Adapted for the United States	2015	0	0	-
A36	Community Need Index	2018	0	0	0.2
A37	Neighborhood Socioeconomic Disadvantage Index	2021	4	4.0	3.3
A38	Modified Darden-Kamel Composite Socioeconomic Index	2016	20	3.3	1.6
A39	Neighborhood Deprivation Index (Slotman et al.)	2022	2	-	1.0
A40	Index of Concentration at the Extremes	2016	47	7.8	1.7
A41	Social Vulnerability Matrix	2022	0	-	-
A42	Economic Hardship Index ^{e, l}	2004	5	0.3	-

WOS, Web of Science; RCR relative citation rate

^a For the reference citation of each measure, see Supplementary Table S2

^b Years for citation count: number of years from measure's initial publication year to 2022

^c Calculation for mean citations per year: the citation count from measure's initial publication year to 2022 divided by the number of years between the measure's initial publication date and 2022 (e.g., A1. Area Deprivation Index: 435 divided by 19)

^d Citations from both Singh (2003) and Kind et al. (2018) were combined, and the earlier publication year (2003) was used as the reference year

^e These measures provide the information in a report or technical document; thus, the citation number was counted by searching the measure's keywords in WOS

^f Search term in WOS: ("Agency for Healthcare Research and Quality" or "AHRQ") (All Fields) and ("SES index" or "socioeconomic status index") (All Fields)

^g Search term in WOS: ("Community Resilience Estimates" or "Community Resilience Estimate") (All Fields)

^h Search term in WOS: ("Minority Health Social Vulnerability Index" or "MHSVI" or "MH-SVI") (All Fields)

ⁱ Search term in WOS: ("Multidimensional Deprivation Index") (All Fields)

^j Search term in WOS: ("Opportunity Index") (All Fields) or ("Opportunity Nation" or "Forum for Youth Investment" or "Child Trends") (All Fields)

^k Search term in WOS: ("Social Capital Index") or ("Joint Economic Committee") (All Fields)

^l Search term in WOS: ("Economic Hardship Index") or ("America's Health Rankings") or ("Intercity hardship index") (All Fields)

Supplementary Table S6. Citation counts of 43 measures without a specific name included in Group B

#	Authors, year ^a	Publication year	Total count of WOS citations ^b	Citation per year ^c	RCR
B1	Beardslee et al., 2021	2021	7	7.0	3.6
B2	Schootman et al., 2006	2006	15	0.9	0.9
B3	Beard et al., 2009	2009	54	4.2	3.1
B4	O'donnell et al., 2015	2015	2	0.3	0.3
B5	Brusilovskiy et al., 2012	2012	7	0.7	0.7
B6	Matthews et al., 2010	2010	38	3.2	2.3
B7	Yang et al., 2011	2011	8	0.7	0.7
B8	Mair et al., 2015	2015	19	2.7	2.2
B9	Dai et al., 2010	2010	161	13.4	5.9
B10	McLafferty et al., 2013	2013	22	2.4	1.4
B11	Cagney et al., 2009	2009	61	4.7	4.3
B12	Freedman et al., 2011	2011	46	4.2	3.0
B13	Bagley et al., 2018	2018	15	3.8	3.4
B14	Spilsbury et al., 2006	2006	118	7.4	5.2
B15	King et al., 2016	2016	11	1.8	1.1
B16	King et al., 2011	2011	46	4.2	3.0
B17	Smith et al., 2017	2017	45	9.0	4.4
B18	Barrette et al., 2008	2008	14	1.0	1.0
B19	Mandelblatt et al., 1995	1995	47	1.7	2.2
B20	Warner et al., 2010	2010	54	4.5	2.3
B21	Mirowsky et al., 2017	2017	7	1.4	0.9
B22	Garcia et al., 2015	2015	0	0.0	0.8
B23	Corriere et al., 2014	2014	14	1.8	0.9
B24	Wasserman et al., 1998	1998	79	3.3	4.0
B25	Lupo et al., 2015	2015	11	1.6	1.3
B26	Shih et al., 2011	2011	46	4.2	2.4
B27	Aneshensel et al., 2011	2011	45	4.1	2.7
B28	Sisco and Marsiske 2012	2012	0	0.0	1.1
B29	Clarke et al., 2012	2012	78	7.8	4.6
B30	Banegas et al., 2014	2014	27	3.4	1.4
B31	Beyer et al., 2019	2019	11	3.7	1.5
B32	Sampson et al., 1999	1999	267	11.6	-
B33	Cho et al., 2011	2011	9	0.8	0.7
B34	Browning et al., 2002	2002	82	4.1	6.9
B35	Coogan et al., 2010	2010	43	3.6	1.8
B36	Doubeni et al., 2012	2012	108	10.8	4.8
B37	Johnson et al., 2016	2016	17	2.8	1.5
B38	Mojica et al., 2015	2015	8	1.1	0.6
B39	Palmer et al., 2012	2012	34	3.4	1.4
B40	Reitzel et al., 2012	2012	26	2.6	1.3
B41	Yang et al., 2014	2014	0	0.0	-
B42	Zhang et al., 2019	2019	11	3.7	1.1
B43	Glass et al., 2006	2006	66	4.1	2.9

WOS, Web of Science; RCR relative citation rate

^a For the reference citation of each measure, see Supplementary Table S2

^b Years for citation count: from measures published to 2022

^c Calculation for annual mean citation: the citation count from measures published to 2022 divided by years from the next year of publication to 2022 (e.g., A1. Area Deprivation Index: 435 divided by 19)

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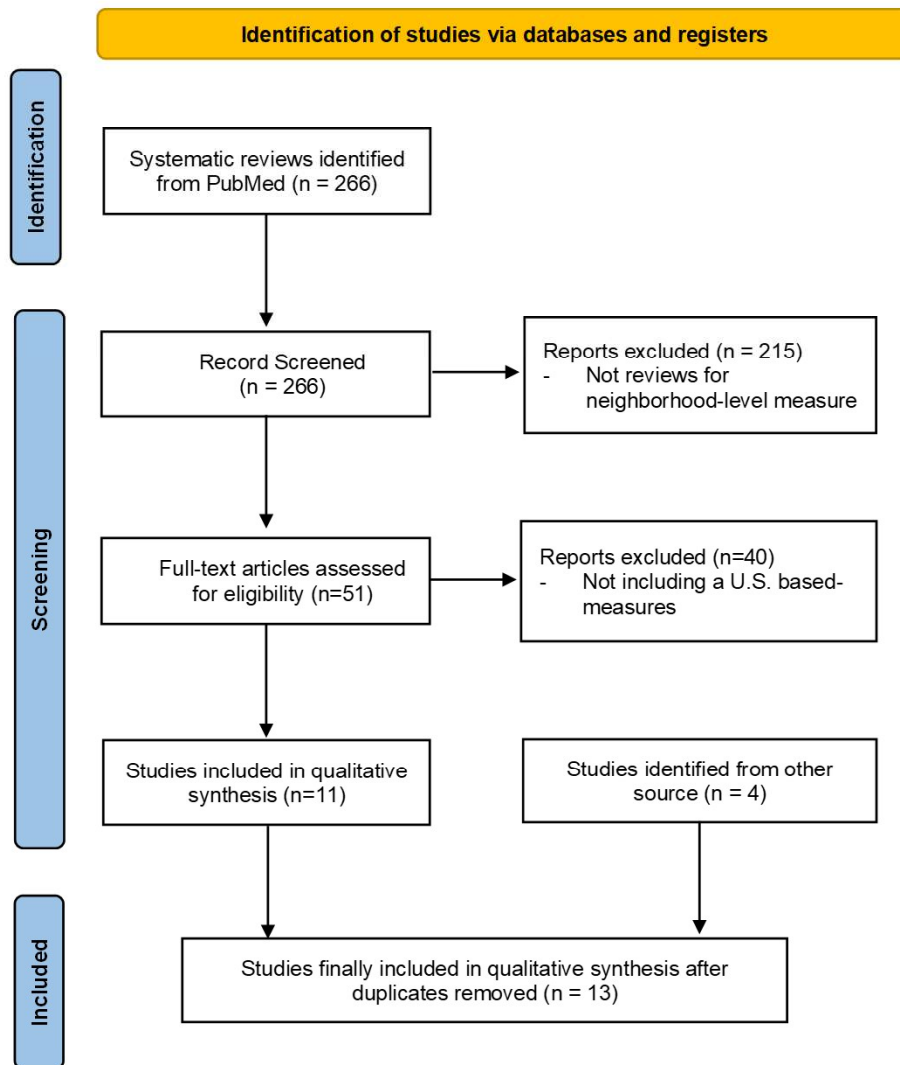
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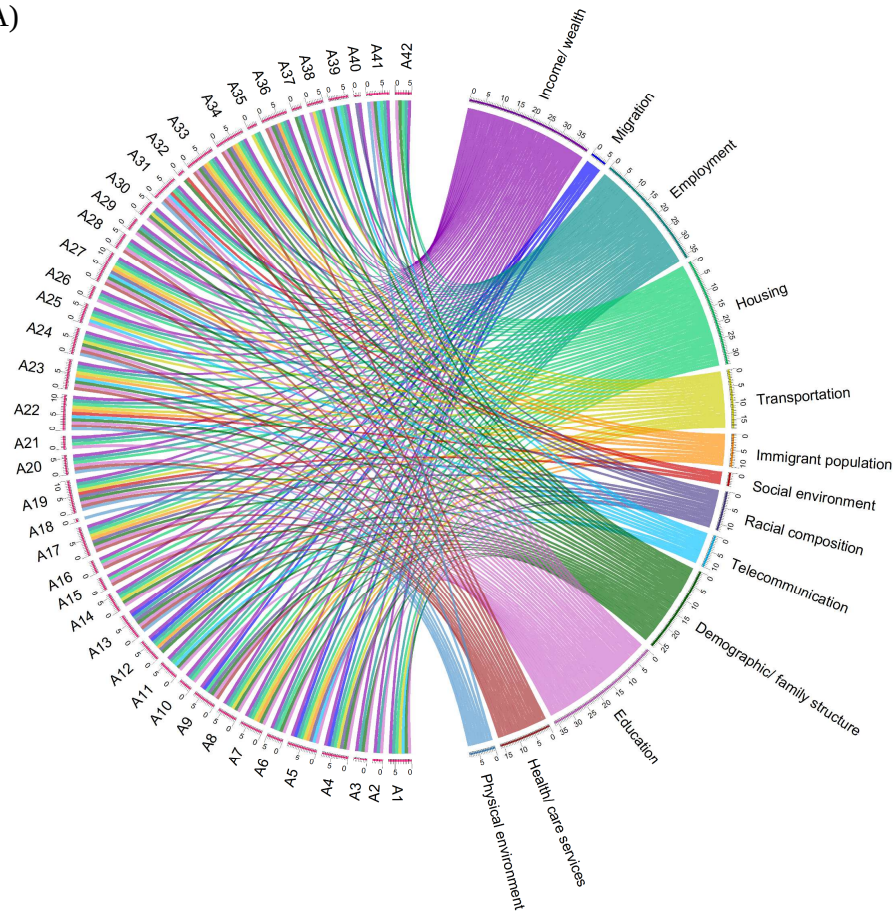
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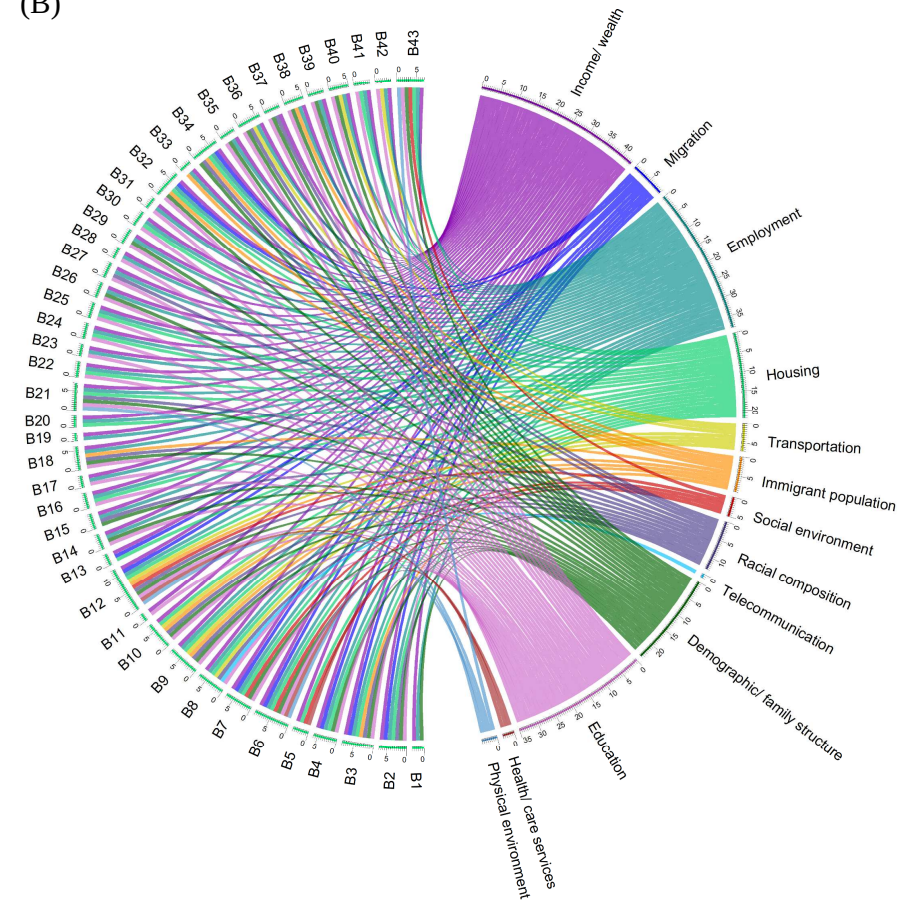


Supplementary Figure S1. PRISMA flow chart for the selection of review studies

(A)

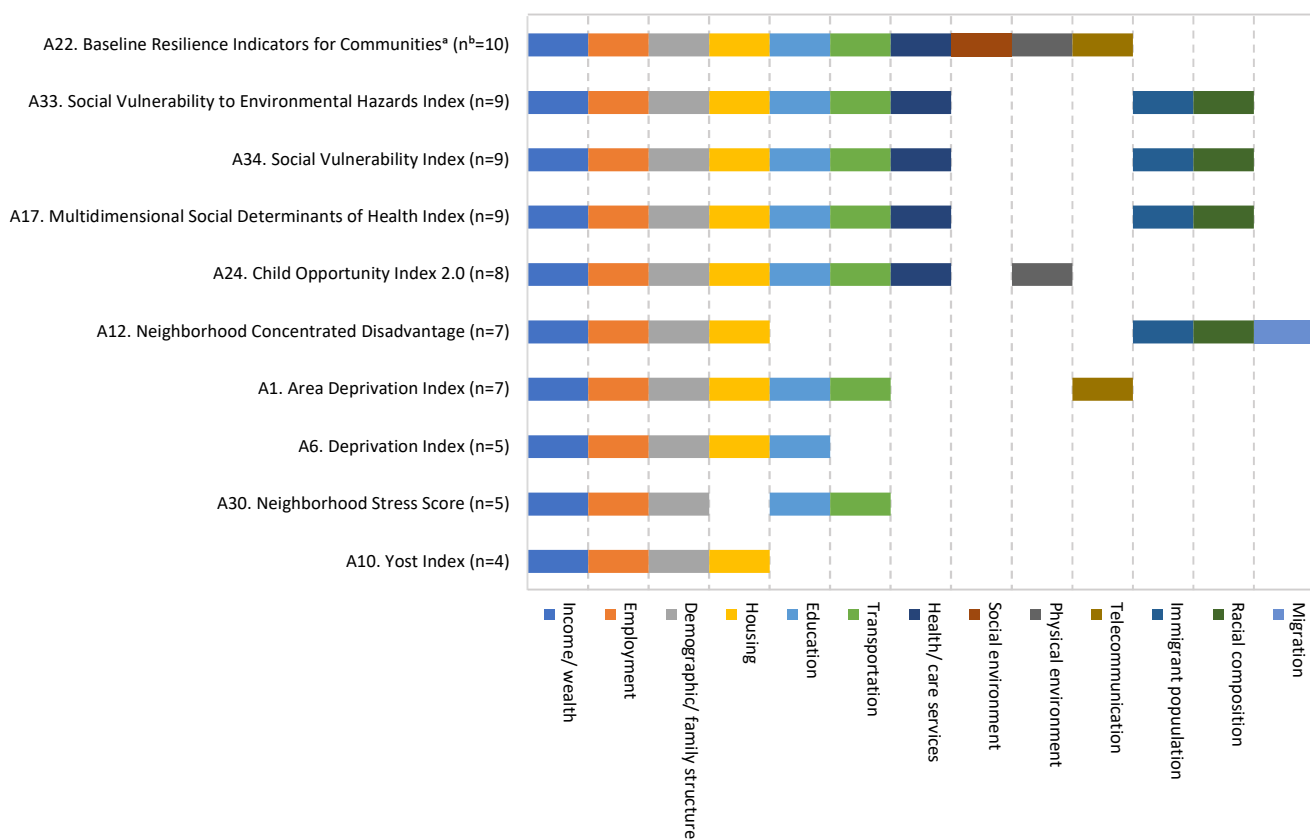


(B)



Supplementary Figure S2. Chord diagrams for measures^a in each (A) group A and (B) group B

^a For the reference citation of each measure, see Supplementary Table S2

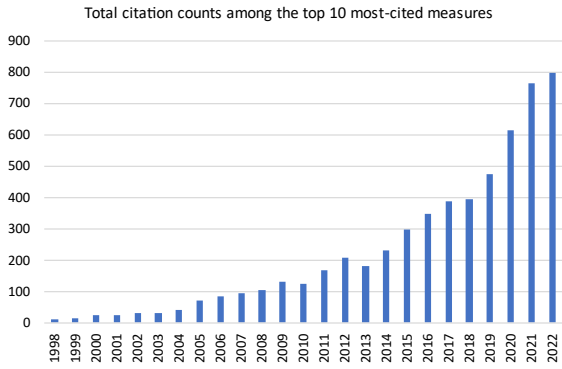


Supplementary Figure S4. Domains included in the top 10 measure of citation counts per year based on framework with 14 domains

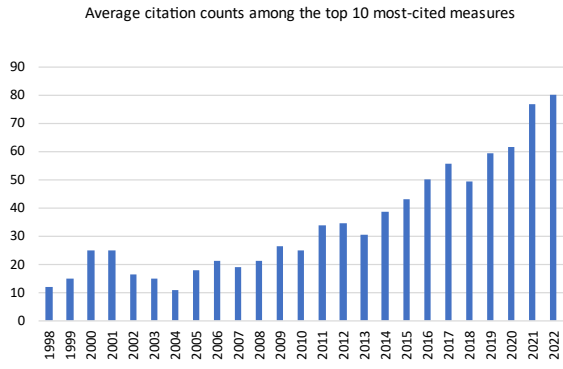
^a For the reference citation of each measure, see Supplementary Table S2

^b The number of domains included in the measure

(A)



(B)



Supplementary Figure S5. The trend of (A) total and (B) average citation counts among the top 10 most-cited SDOH measures.