Supplemental Files

Supplemental Table 1. Definitions of county-level characteristics and data sources[1]

Variable	Definition	Source	Year
Demographic			
Population size (N, in thousands)	County population	Census Population Estimates	2018
% Female	Percentage of the population who are female	Census Population Estimates	2018
% Aged ≥ 65 years	Percentage of population ages 65 and older	Census Population Estimates	2018
% Hispanic	Percentage of population who are Hispanic	Census Population Estimates	2018
% Asian-American	Percentage of the population who are Asian-American	Census Population Estimates	2018
% Black	Percentage of the population who are Black/African American	Census Population Estimates	2018
% Foreign born	Percentage of the population who are foreign born	American Community Survey	2014-2018
% Not proficient in English	Percentage of the population who are not proficient in English	American Community Survey	2014-2018
% Rural	Percentage of the population living in a rural area	Census Population Estimates	2010
Economic/social			
Income level (median, $ in thousands)	Median income level	Small Area Income and Poverty Estimates	2018
% Unemployed	Percentage of residents aged 16–64 years who are unemployed	Bureau of Labor Statistics	2018
% Without high school education	Percentage of residents aged 24–65 years without a high school education	American Community Survey	2014-2018
% In poverty	Percentage of population living in poverty	Small Area Income and Poverty Estimates	2018
Air pollution (μg/m^3)	Average daily density of fine particulate matter in micrograms per cubic meter (PM2.5)	Environmental Public Health Tracking Network	2014
Social vulnerability index	Relative vulnerability of each county in the event of a disaster, ranked on 15 social factors including unemployment, minority status, and disability	Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry	2018
Violent crime (N, per 100,000)	Number of reported violent crime offenses per 100,000 population	Uniform Crime Reporting Program, Federal Bureau of Investigation	2014 & 2016

Injury deaths (N, per 100,000)	Number of deaths due to injury per 100,000 population	National Center for Health Statistics – Mortality Files	2014-2018
Health care			
Primary care physicians (N, per 100,000)	Number of primary care physicians per 100,000 population	American Medical Association	2018
Internal medicine subspecialists (N, per 100,000)	Number of internal medicine subspecialists per 100,000 population, including nephrologists	American Medical Association	2018
% Without health insurance	Percentage of persons aged 40–64 years without health insurance	Small Area Health Insurance Estimates	2017
Health-care expenditures ($ in thousands)	County-level price-, age-, sex-, and race/ethnicity- adjusted Medicare expenditures per enrollee	Centers for Medicare & Medicaid Services	2018
Dialysis facilities (N, per 100,000)	Number of dialysis facilities per 100,000 population	Dialysis Facility Compare	2017
Transplant Rate (N, per 1,000 person-years)	Transplant rate (first transplant) per 1,000 person-years	United States Renal Data System	2010-2018
Health behaviors			
% Access to exercise opportunities	Percentage of the county population residing within one-half mile (0.8 km) of a park or within 1 mile (1.6 km) (urban) or 3 miles (4.8 km) (rural) of a recreational facility	Business Analyst, Delorme map data, ESRI, & US Census Tigerline File	2010 & 2019
Food environment index	Index of factors that contribute to a healthy food environment, from 0 (worst) to 10 (best)	USDA Food Environment Atlas, Map the Meal Gap from Feeding America	2015 & 2017
% Current smoking	Percent of adults that reported currently smoking	Behavioral Risk Factor Surveillance System	2017
% Excessive drinking	Percent of adults that report excessive drinking	Behavioral Risk Factor Surveillance System	2017

Abbreviations: ESRI, Environmental Systems Research Institute; USDA, United States Department of Agriculture

[1] In all, 18 (67%) of these measures were accessed via the County Health Rankings and Roadmaps project (1), 5 (19%) were accessed through the Area Health Resource File (2), 1 (4%) was accessed through the Dartmouth Atlas of Health Care (3), 1 (4%) was derived using data from Dialysis Facility Compare (4), 1 (4%) was accessed via the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry (5), and 1 (4%) was derived using data from the United States Renal Data System (4%) (6).

References

1. University of Wisconsin Population Health Institute: County Health Rankings & Roadmaps 2020. [Internet]. Available from: https://www.countyhealthrankings.org [cited 2021 Apr 26]

2. Health Resources and Services Administration, US Department of Health and Human Services.: Area Health Resource File (AHRF) 2019–2020 Release [Internet]. Available from: https://data.hrsa.gov/data/download [cited 2021 Apr 26]

3. Dartmouth Atlas of Health Care: Medicare Reimbursements [Internet]. Available from: https://data.dartmouthatlas.org/medicare-reimbursements/ [cited 2021 Apr 26]

4. Data Dictionary for Quarterly Dialysis Facility Compare [Internet]. Available from: https://data.cms.gov/provider-data/sites/default/files/data_dictionaries/DF_Data_Dictionary.pdf [cited 2021 Jul 6]

5. Centers for Disease Control and Prevention/ Agency for Toxic Substances and Disease Registry/ Geospatial Research, Analysis, and Services Program: CDC/ATSDR Social Vulnerability Index 2018 US [Internet]. Available from: https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html [cited 2022 Feb 15]

6. United States Renal Data System. 2020 USRDS Annual Data Report: Epidemiology of kidney disease in the United States. National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2020.

Supplementary Table 2 STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No.	Recommendation	Page No.
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	3-4
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5
Objectives	3	State specific objectives, including any prespecified hypotheses	6
Methods			
Study design	4	Present key elements of study design early in the paper	6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	6-7
		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case	n/a
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7, Suppl T1
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7, Suppl T1
Bias	9	Describe any efforts to address potential sources of bias	8-9
Study size	10	Explain how the study size was arrived at	7, Figure 1

Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	8
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	8-9
		(*b*) Describe any methods used to examine subgroups and interactions	n/a
		(*c*) Explain how missing data were addressed	8-9
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy	n/a
		(*e*) Describe any sensitivity analyses	n/a
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed	Figure 1
		(b) Give reasons for non-participation at each stage	Figure 1
		(c) Consider use of a flow diagram	Figure 1
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	9-10, Table 1
		(b) Indicate number of participants with missing data for each variable of interest	8, Table 2
		(c) *Cohort study*—summarize follow-up time (eg, average and total amount)	n/a
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time	n/a
		Case-control study—Report numbers in each exposure category, or summary measures of exposure	n/a
		Cross-sectional study—Report numbers of outcome events or summary measures	9-10, Figure 2
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9-11, Table 2, Figure 2&3
		(*b*) Report category boundaries when continuous variables were categorized	Table 1&2
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	n/a

Continued on next page

Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	n/a
Discussion			
Key results	18	Summarize key results with reference to study objectives	11
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	14-15
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	15
Generalizability	21	Discuss the generalizability (external validity) of the study results	11-14
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	16

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.