## Table S1. Risk factor data descriptions. Column “Type” shows the type of risk factor; column “Abbreviation” shows abbreviations of risk factor names; column “Measure” shows the specific measures; column “Year” shows the measurement years data were used in the analyses; column “Source” specifies and links to the data sources. Column “Statistics” shows the mean (standard deviation) of each measure over the specified years; whenever available, sex-specific measures are shown and were used in the analyses.

| Type | | Abbreviation | Measure | Year | Source | Statistics | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Men | Women |
| Race & SES | | POV | Percent of population living in poverty | 2010-2018 | [ACS](https://www.census.gov/topics/income-poverty/poverty/data/tables/acs.html) [1] | 14.21 (3.75) | |
| INS | Percent of population without health insurance | 2010-2018 | [ACS](https://www.census.gov/data/tables/time-series/demo/health-insurance/acs-hi.html) [1] | 8.68 (1.55) | |
| RACE | Percentage of white residents | 2010-2018 | [ACS](https://www.census.gov/data/tables/time-series/demo/popest/2010s-counties-detail.html) [1] | 0.9 (0.1) | 0.9 (0.12) |
| Env | Air Quality | OZONE | Ozone: Number of days with maximum 8-hour average concentration exceed NAAQS (monitor and modeled data) | 2000-2009 | [EPA](https://ephtracking.cdc.gov/indicatorPages) [2, 3] | 11.2 (4.72) | |
| NO2 | Annual mean ground-level NO2 mixing ratio for 2005-2019 | 2005-2009 | [ACAG](https://sites.wustl.edu/acag/datasets/surface-no2/) [4] | 1.71 (1.33) | |
| OMOC | Spatially and seasonally resolved estimate of the ratio of global organic mass to organic carbon | 2005-2008 | [ACAG](https://sites.wustl.edu/acag/datasets/om-oc-dataset/) [5] | 2.29 (0) | |
| BC | PM2.5: Annual mean black carbon concentration (BC) | 2000-2009 | [EPA](https://ephtracking.cdc.gov/indicatorPages) [2],  [ACAG](https://sites.wustl.edu/acag/datasets/surface-pm2-5/) [6, 7] | 0.8 (0.21) | |
| NH4 | PM2.5: Annual mean ammonium concentration (NH4+) | 2000-2009 | [EPA](https://ephtracking.cdc.gov/indicatorPages) [2],  [ACAG](https://sites.wustl.edu/acag/datasets/surface-pm2-5/) [6, 7] | 1.48 (0.2) | |
| NIT | PM2.5: Annual mean nitrate concentration (NO3–) | 2000-2009 | [EPA](https://ephtracking.cdc.gov/indicatorPages) [2],  [ACAG](https://sites.wustl.edu/acag/datasets/surface-pm2-5/) [6, 7] | 1.15 (0.28) | |
| OM | PM2.5: Annual mean organic matter concentration (OM) | 2000-2009 | [EPA](https://ephtracking.cdc.gov/indicatorPages) [2],  [ACAG](https://sites.wustl.edu/acag/datasets/surface-pm2-5/) [6, 7] | 3.25 (0.39) | |
| SO4 | PM2.5: Annual mean sulfate concentration (SO42+) | 2000-2009 | [EPA](https://ephtracking.cdc.gov/indicatorPages) [2],  [ACAG](https://sites.wustl.edu/acag/datasets/surface-pm2-5/) [6, 7] | 3.48 (0.42) | |
| SOIL | PM2.5: Annual mean mineral dust concentration (SOIL) | 2000-2009 | [EPA](https://ephtracking.cdc.gov/indicatorPages) [2],  [ACAG](https://sites.wustl.edu/acag/datasets/surface-pm2-5/) [6, 7] | 0.36 (0.07) | |
| SS | PM2.5: Annual mean sea-salt concentration (SS) | 2000-2009 | [EPA](https://ephtracking.cdc.gov/indicatorPages) [2],  [ACAG](https://sites.wustl.edu/acag/datasets/surface-pm2-5/) [6, 7] | 0.32 (0.13) | |
| Water Quality | HAA5 | Mean concentration of HAA5 (micrograms per liter) by year | 2000-2009 | [EPH-state recipient](https://ephtracking.cdc.gov/indicatorPages) [8] | 20.8 (12.62) | |
| TTHM | Mean concentration of TTHM (micrograms per liter) by year | 2000-2009 | [EPH-state recipient](https://ephtracking.cdc.gov/indicatorPages) [8] | 35.51 (14.18) | |
| NITRA | Mean concentration of Nitrate (milligrams per liter) by year | 2000-2009 | [EPH-state recipient](https://ephtracking.cdc.gov/indicatorPages) [8] | 0.85 (0.68) | |
| Other | TOXIC | Rate of reported acute toxic substance release incidents per 100,000 population | 2000-2009 | [Hazardous Substances Emergency Events Surveillance (HSEES)](https://ephtracking.cdc.gov/indicatorPages) [9] | 6.36 (3.14) | |
| RADONZONE | Radon zone | 2000-2009 | [EPA](https://www.epa.gov/radon/epa-map-radon-zones) [10] | 34 (54.84%) | |
| Health | | MH | Percent of adults aged >=18 years with mental health not good for >=14 days | 2018 | BRFSS [11], [PLACES](https://data.cdc.gov/500-Cities-Places/PLACES-County-Data-GIS-Friendly-Format-2023-releas/i46a-9kgh/about_data) [12] | 13.22 (1.09) | |
| TL | Percent of adults aged >=65 years with all teeth loss | 2018 | BRFSS [11], [PLACES](https://data.cdc.gov/500-Cities-Places/PLACES-County-Data-GIS-Friendly-Format-2023-releas/i46a-9kgh/about_data) [12] | 16.35 (2.67) | |
| CERVSCN | Percent of adult women aged >=21 to =65 years who have been screened for cervical cancer | 2018 | BRFSS [11], [PLACES](https://data.cdc.gov/500-Cities-Places/PLACES-County-Data-GIS-Friendly-Format-2023-releas/i46a-9kgh/about_data) [12] |  | 85.09 (1.5) |
| CHKUP | Percent of adults aged >=18 years with visits to the doctor for routine checkup | 2018 | BRFSS [11], [PLACES](https://data.cdc.gov/500-Cities-Places/PLACES-County-Data-GIS-Friendly-Format-2023-releas/i46a-9kgh/about_data) [12] | 80.75 (1.12) | |
| COLSIG | Percent of adults aged >=50 to =75 years who have received a fecal occult blood test, sigmoidoscopy, or colonoscopy. | 2018 | BRFSS [11], [PLACES](https://data.cdc.gov/500-Cities-Places/PLACES-County-Data-GIS-Friendly-Format-2023-releas/i46a-9kgh/about_data) [12] | 67.19 (2.78) | |
| UTDPRV | Percent of older adult aged >=65 years who are up-to-date on a core set of clinical preventive services | 2018 | BRFSS [11], [PLACES](https://data.cdc.gov/500-Cities-Places/PLACES-County-Data-GIS-Friendly-Format-2023-releas/i46a-9kgh/about_data) [12] | 25.22 (2.82) | 24.84 (2.12) |
| MAMMO | Percent of women aged >=50 to =74 years who use mammography | 2018 | BRFSS [11], [PLACES](https://data.cdc.gov/500-Cities-Places/PLACES-County-Data-GIS-Friendly-Format-2023-releas/i46a-9kgh/about_data) [12] |  | 75.25 (2.41) |
| Lifestyle | | BINDRK | Percent of adults aged >=18 years who binge drink | 2018 | BRFSS [11], [PLACES](https://ephtracking.cdc.gov/indicatorPages?selectedContentAreaAbbreviation=19&selectedIndicatorId=185) [12] | 17.46 (1.49) | |
| OBESE | Percent of adults aged >=18 years with obesity | 2000-2009 | [IHME](https://ghdx.healthdata.org/record/ihme-data/united-states-physical-activity-and-obesity-prevalence-county-2001-2011) [13] | 31.88 (3.5) | 30.41 (3.06) |
| PHYACT | Percent of adults aged >=18 years with no leisure-time physical activity | 2000-2009 | [IHME](https://ghdx.healthdata.org/record/ihme-data/united-states-physical-activity-and-obesity-prevalence-county-2001-2011) [13] | 25.89 (2.96) | 22.7 (2.75) |
| SMOK | Percent of adults aged >=18 years with current smoking | 2000-2009 | [IHME](https://ghdx.healthdata.org/record/ihme-data/united-states-smoking-prevalence-county-1996-2012) [14] | 23.62 (3.21) | 25.76 (2.69) |
| Other | | AG | Percent of land used for agriculture | 2000-2009 | [NLCD](https://ephtracking.cdc.gov/indicatorPages) [15] | 23.19 (17.45) | |
| RURAL | Classification of county from rural to urban (two category scale) | 2000-2009 | [NCHS](https://ephtracking.cdc.gov/indicatorPages) [16] | 36 (58.06%) | |
| LAT | Latitude of county | 2000-2009 | [NYS GIS Program](https://gis.ny.gov/civil-boundaries) [17] | 42.56 (1) | |
| LAT2 | Polynomial term of latitude | 2000-2009 | [NYS GIS Program](https://gis.ny.gov/civil-boundaries) [17] | 1812.07 (84.74) | |

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14. Institute for Health Metrics and Evaluation (IHME), *United States Smoking Prevalence by County 1996-2012.*

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