​**Information on BRFSS data set**

The Behavioral Risk Factor Surveillance System (BRFSS) is the top telephone survey program in the US for gathering information on health-related risk behaviors, chronic diseases, and the use of preventative treatments among Americans(CDC, 2022). The BRFSS has ​been conducted using both landline and cellular telephone surveys since 2011. ​From​ 2014​ onward​, computer-assisted telephone interview (CATI) systems were employed in 53 states or territories(CDC, 2022)​​. State health departments practice in-house interviewers or hire call centers or universities to conduct the BRFSS surveys regularly throughout the year with technical and methodological support from the CDC(CDC, 2022). Random Digit Dialing (RDD) methods are used for conducting the survey on both landlines and mobile devices using a standardized core questionnaire, optional modules, and questions specific to their state(CDC, 2022). Interviewers collect information from an adult who is randomly ​chosen in a home when conducting the BRFSS landline telephone survey. ​On the other ​hand, interviewers ​gather information from an adult who participates ​by utilizing a cellular telephone and living in a private residence or college accommodation when performing the cellular telephone version of the BRFSS questionnaire(OASH, 2015).

Respondents eighteen years or older (noninstitutionalized adults> 18 years) are included in the survey. People aged under 18 or living in a nursing home or institutionalized adult and households in states other than the one where the survey is being conducted were excluded from the survey. Based on financing and regions’ size, such as health districts, within each state, the number of interviews will vary(CDC, 2022). To eliminate bias induced by seasonal changes in health habits and symptoms, about the same number of interviews are gathered monthly throughout the calendar year(CDC, 2022). In general public-use BRFSS data can be accessed through its website and information and resources created by federal agencies are in the public domain and this can be copied without prior permission from them. However, it requires that any published content based on the data credit the CDC's BRFSS as the original source, though(CDC, 2023). BRFSS gathers information on state-level health-related risk behaviors and events, chronic health conditions, and usage of preventive services among US residents(CDC, 2023). Additionally, the BRFSS gathers information on significant new health problems, such as the lack of vaccines and influenza-like illnesses(CDC, 2023). So, this data is appropriate to answer the research questions I proposed.

**Justification for chosen characteristic that were considered as confounders**

Stroke incidence is considerably higher in the Stroke Belt than in other US regions, with 25.7 cases per 1000 people in Stroke Belt states and 20.2 cases per 1000 in non-Stroke Belt states. The Stroke Belt is a region (southeastern states) of the United States made up of Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee(CDC, 2016; Tran et al., 2021a). In comparison to other regions, the Stroke Belt has a greater proportion of rural residents, and nationwide, stroke incidence is higher among rural residents than residents of more urban areas. Contributors to the Stroke Belt may include a higher percentage of black people, residents with a higher prevalence of traditional stroke risk factors, inflammation and infection, and lower socioeconomic status(Howard & Howard, 2020). The high prevalence of hypertension (Stroke Belt: 48.9%; non-Stroke Belt: 39.2%) observed in this area may contribute in part to the elevated stroke rates in the Stroke Belt(Wetmore et al., 2013). Uncontrolled hypertension after a stroke increases the chance of another stroke and subsequent hospitalization for Stroke Belt residents who have experienced one(Towfighi et al., 2014; Tran et al., 2021a). Strokes and heart attacks are strongly related. Both share many of the same risk factors and are frequently brought on by the same medical conditions, such as cardiovascular disease. The likelihood of suffering a heart attack was apparent after experiencing a first stroke(Joy, 2020). Adults aged 65 and older had an age-adjusted mortality rate for stroke of 260.5 per 100,000 people in 2020, with rates being lower in metropolitan than nonmetropolitan regions (259.4 versus 265.5). South residents had the greatest rate (288.2), while residents of the Northeast had the lowest rate (199.1)(MMWR, 2020). Diabetes is estimated to be present in 27.9% of stroke patients in the US(Lichtman et al., 2013). Even though stroke status has no effect on nonadherence to diabetes treatment, there is still significant nonadherence among stroke survivors who have diabetes(Tran et al., 2021b). Smoking is considered a significant risk factor for stroke, and prior research has found a clear dose-dependent association between smoking and the risk of ischemic stroke(Feigin et al., 2016; Pan et al., 2019). According to study findings, moderate and high levels of physical activity are linked to a lower risk of total, ischemic, and hemorrhagic strokes(Goldstein et al., 2006; Lee et al., 2003). When compared to individuals with private insurance, persons without insurance/health care coverage had less access to primary care physicians and less access to specialists, drugs, and rehabilitation(Skolarus et al., 2014).

**Data Dictionary:**

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| **Variable Name** | **Description** | **Question** | **Type of Characteristic** | **Field Type** | **Response Options** |
| **\_STATE** | State FIPS Code | State FIPS Code | Demographic | Numeric | 1= Alabama 5=Arkansas  13= Georgia  22=Louisiana  28=Mississippi  37=North Carolina  45=South Carolina  47=Tennessee |
| **\_PAINDX2** | Physical Activity Index | Physical Activity Index | Health-related | Numeric | 1= Meet aerobic recommendations  2=Did not meet aerobic recommendations 9=Don't know/Not Sure/Refused/Missing |
| **CVDCRHD4** | Ever Diagnosed with Angina or Coronary Heart Disease | (Ever told) you had angina or coronary heart disease? | Health-related |  | 1=Yes  2=No 7=Don't know/Not sure 9=Refused Blank=Not asked or Missing |
| **CVDSTRK3** | Ever Diagnosed with a Stoke | (Ever told) you had a stroke. | Health-related | Numeric | 1=Yes  2=No 7=Don't know/Not sure 9=Refused Blank=Not asked or Missing |
| **BPHIGH4** | Ever Told Blood Pressure High | Have you ever been told by a doctor, nurse or other health professional that you have high blood pressure? | Health-related | Numeric | 1=Yes  2=No, 7=Don´t know/Not Sure 9=Refused |
| **CVDINFR4** | Ever Diagnosed with Heart Attack | (Ever told) you had a heart attack, also called a myocardial infarction? | Health-related | Numeric | 1=Yes  2=No 7=Don't know/Not sure 9=Refused Blank=Not asked or Missing |
| **DIABETE4** | (Ever told) you had diabetes | (Ever told) (you had) diabetes? | Health-related | Numeric | 1=Yes  2=No 7=Don't know/Not sure 9=Refused Blank=Not asked or Missing |
| **\_RFCHOL2** | High Cholesterol Calculated Variable | Adults who have had their cholesterol checked and have been told by a doctor, nurse, or other health professional that it was high | Health-related |  | 1=No  2=Yes 9=Don't know/Not Sure Or Refused/Missing |
| **\_INCOMG** | Computed Income Categories | Income categories | Demographic | Numeric | 1=Less than 15,000  2=15,000-25,000  3=25,000-35,000  4=35,000-50,000  5=50,000-more |
| **\_AGE\_G** | Imputed Age in Six Groups | Six-level imputed age category | Demographic | Numeric | 1=Age 18 to 24  2=Age 25 to 34  3=Age 35 to 44  4=Age 45 to 54  5=Age 55 to 64  6=Age 65 or older |
| **\_IMPRACE** | Imputed Race/Ethnicity Value | Imputed race/ethnicity value (This value is the reported race/ethnicity or an imputed race/ethnicity, if the respondent refused to give a race/ethnicity. The value of the imputed race/ethnicity will be the most common race/ethnicity response for that region of the state) | Demographic | Numeric | 1=White, Non-Hispanic  2=Black, Non-Hispanic  3=Asian, Non-Hispanic  4=American Indian/Alaskan Native, Non-Hispanic  5=Hispanic  6=Other race, Non-Hispanic |
| **POORHLTH** | Poor Physical or Mental Health | During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation? | Health-related | Numeric | 1-30=Number of days  88= None 77=Don’t know/Not sure 99=Refused |
| **\_URBSTAT** | Urban Rural | Urban/Rural Status | Demographic | Numeric | 1=Urban counties  2=Rural counties Blank=Not defined or Missing |
| **SEXVAR** | Sex of Respondent | Sex of Respondent | Demographic | Numeric | 1=Male  2=Female |
| **\_SMOKER3** | Computed Smoking Status | Four-level smoker status: Everyday smoker, someday smoker, former smoker, non-smoker | Health-related | Numeric | 1=Yes  2=No |
| **EDUCA** | Education Level | What is the highest grade or year of school you completed? | Demographic | Numeric | 1=Never attended school or only kindergarten  2=Grades 1 through 8 (Elementary)  3=Grades 9 through 11 (Some high school)  4=Grade 12 or GED (High school graduate) 5=College 1 year to 3 years (Some college or technical school) 6=College 4 years or more (College graduate) 9=Refused Blank=Not asked or Missing |
| **HLTHPLN1** | Have any health care coverage | Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service? | Demographic | Numeric | 1=Yes  2=No |

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