Final project

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Table 1: CHSItable

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Community Health Status Indicators (CHSI) to Combat Obesity, Heart Disease and Cancer
Metadata Updated: February 26, 2020
Community Health Status Indicators (CHSI) to combat obesity, heart disease, and cancer are major components of the Community Health Data Initiative. This dataset provides key health indicators for local communities and encourages dialogue about actions that can be taken to improve community health (e.g., obesity, heart disease, cancer). The CHSI report and dataset was designed not only for public health professionals but also for members of the community who are interested in the health of their community. The CHSI report contains over 200 measures for each of the 3,141 United States counties. Although CHSI presents indicators like deaths due to heart disease and cancer, it is imperative to understand that behavioral factors such as obesity, tobacco use, diet, physical activity, alcohol and drug use, sexual behavior and others substantially contribute to these deaths.

Table 2: Peer Counties

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County Health Rankings and Roadmaps and CDC's Community Health Status Indicators (CHSI) have teamed up to offer an enhanced peer county comparison feature. This excel file provides information on the groups of counties that could be considered peers based on key demographic, social, and economic indicators. To utilize this feature, please locate your county (by county name or FIPS code) in the second tab of this file. The number in the "Peer County Group" column indicates the peer cluster for your county. To learn about others in this peer county group, you can sort or filter the spreadsheet for other counties in this group. Once you have identified the counties in your peer group, you can use the CHR&R compare counties feature to explore the health factors and outcomes across counties in your peer group.

Output Excel file County_FIPS.xlsx contains FIPS codes without missing zeros.

I am a resident of Passaic county, NJ. Let's find what Strata my county belongs to, find Peer counties in this Strata, and count how many Peer counties are there:

[1] "Passaic county, NJ belongs to strata 9"

Table 3: Peer counties in Strata 9, a total of 34 counties

FIPS	PeerCountyGroup	County	State
06069	9	San Benito County	California
06071	9	San Bernardino County	California
06113	9	Yolo County	California

FIPS	PeerCountyGroup	County	State
08001	9	Adams County	Colorado
12097	9	Osceola County	Florida
13063	9	Clayton County	Georgia
13089	9	DeKalb County	Georgia
13097	9	Douglas County	Georgia
13135	9	Gwinnett County	Georgia
13151	9	Henry County	Georgia
13217	9	Newton County	Georgia
13247	9	Rockdale County	Georgia
17037	9	DeKalb County	Illinois
17163	9	St. Clair County	Illinois
18089	9	Lake County	Indiana
20209	9	Wyandotte County	Kansas
22051	9	Jefferson Parish	Louisiana
22087	9	St. Bernard Parish	Louisiana
25005	9	Bristol County	Massachusetts
26099	9	Macomb County	Michigan
34007	9	Camden County	New Jersey
34031	9	Passaic County	New Jersey
36071	9	Orange County	New York
37071	9	Gaston County	North Carolina
41071	9	Yamhill County	Oregon
51570	9	Colonial Heights city	Virginia
51630	9	Fredericksburg city	Virginia
51650	9	Hampton city	Virginia
51670	9	Hopewell city	Virginia
51700	9	Newport News city	Virginia
51740	9	Portsmouth city	Virginia
51800	9	Suffolk city	Virginia
53053	9	Pierce County	Washington
55059	9	Kenosha County	Wisconsin

[1] "Passaic county, NJ belongs to Strata 9 that ranks 6th lowest in Poverty level "

[1] "amongst the total of 88 Stratas in the US."

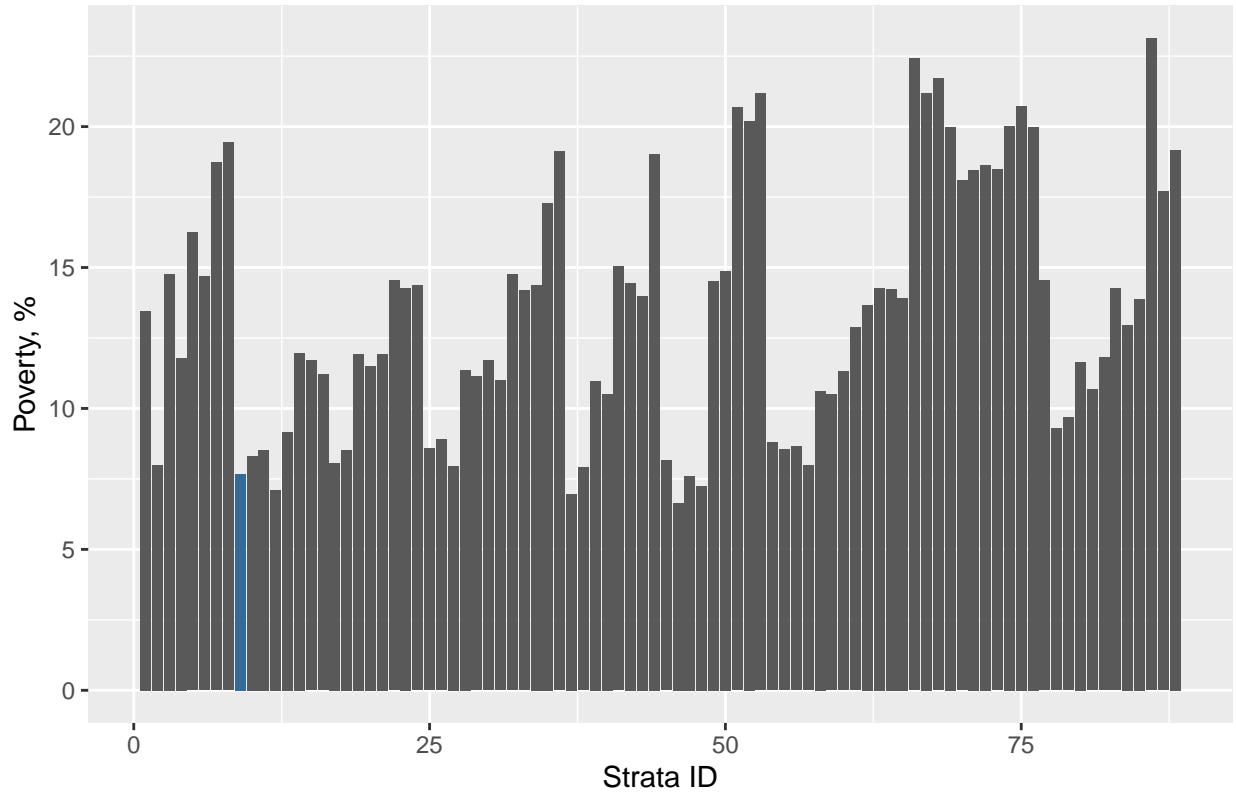## County data per strata, individuals living below poverty level, %

Table 4: A strata with the highest % of population living below poverty line is 86

CHSI_County_Name	CHSI_State_Name	Poverty
Shannon	South Dakota	35.6
Ziebach	South Dakota	33.0
Buffalo	South Dakota	30.0
Issaquena	Mississippi	29.0
Hudspeth	Texas	28.6
Corson	South Dakota	27.5

Table 5: A strata with the lowest % of population living below poverty line is 46

CHSI_County_Name	CHSI_State_Name	Poverty
Scott	Minnesota	3.8
Carver	Minnesota	4.0
Hendricks	Indiana	4.6
Putnam	New York	4.6
Delaware	Ohio	4.6
Hancock	Indiana	5.0

Table 6: County data, population density (people per square mile)

CHSI_County_Name	CHSI_State_Name	Population_Density
Autauga	Alabama	82
Baldwin	Alabama	102
Barbour	Alabama	32
Bibb	Alabama	35
Blount	Alabama	86
Bullock	Alabama	18

Table 7: Top 10 counties with highest population density in the US

CHSI_County_Name	CHSI_State_Name	Population_Density
New York	New York	69390
Kings	New York	35211
Bronx	New York	32300
Queens	New York	20520
San Francisco	California	15837
Hudson	New Jersey	12926
Suffolk	Massachusetts	11183
Philadelphia	Pennsylvania	10832
Washington	District of Columbia	8966
Alexandria City	Virginia	8915

Four of the boroughs of New York City are leading hte list leaving other counties far behind. No wonder they have teh most of COVID-19 cases.

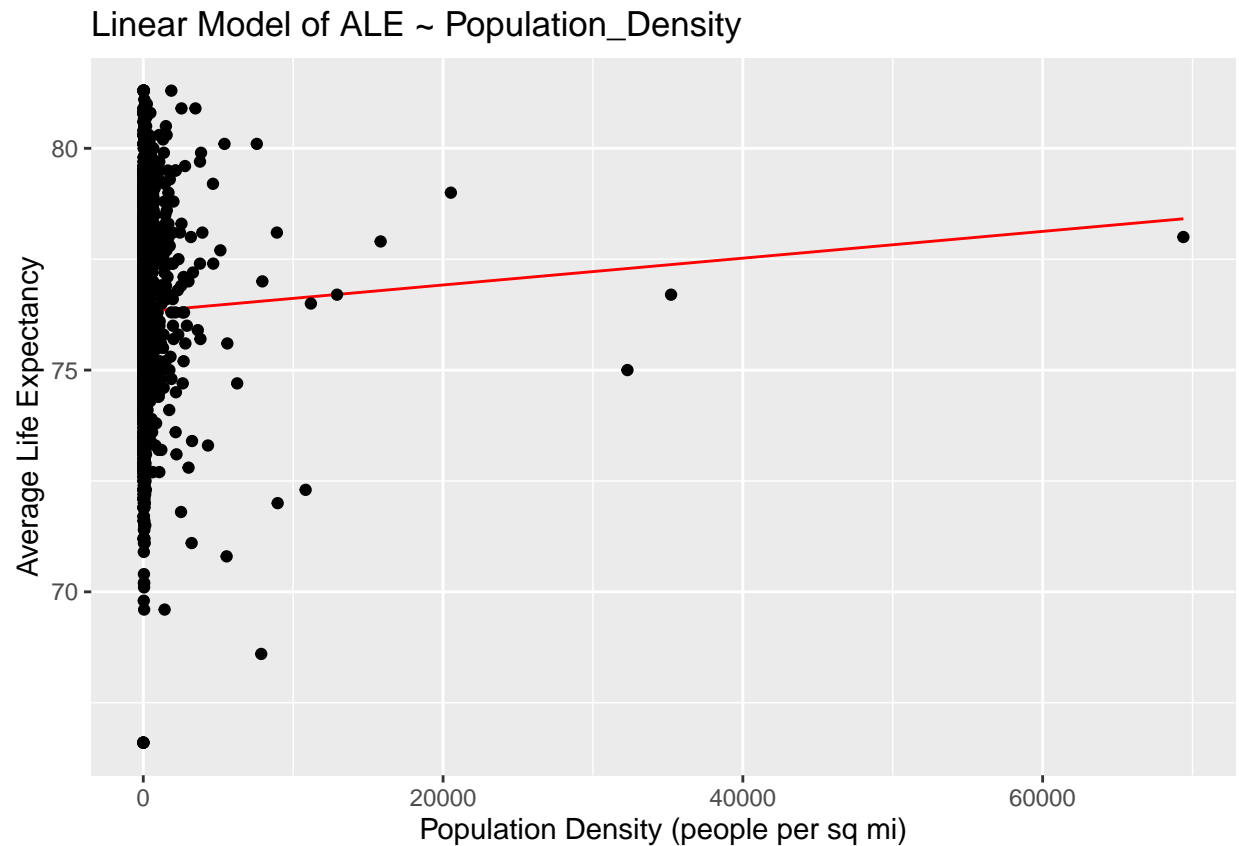Table 8: County data, average life expectancy

CHSI_County_Name	CHSI_State_Name	ALE
Autauga	Alabama	74.9
Baldwin	Alabama	76.6
Barbour	Alabama	74.5
Bibb	Alabama	73.2
Blount	Alabama	76.1
Bullock	Alabama	71.9

Let's left join these two data frames
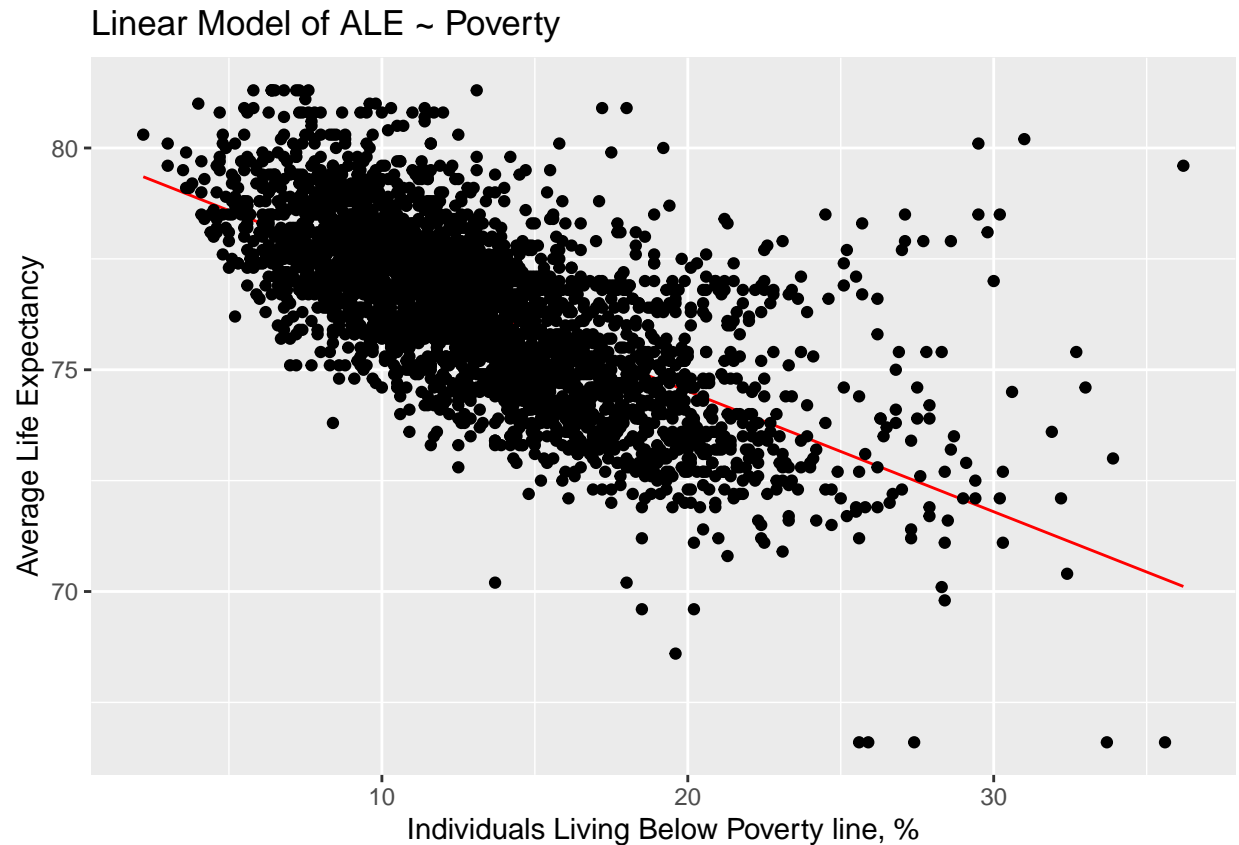
Table 9: Population Density and Average Life Expectancy by county

CHSI_County_Name	CHSI_State_Name	Population_Density	ALE
Autauga	Alabama	82	74.9
Baldwin	Alabama	102	76.6
Barbour	Alabama	32	74.5
Bibb	Alabama	35	73.2
Blount	Alabama	86	76.1
Bullock	Alabama	18	71.9

Let's build a Linear Model of ALE ~ Population_Density:

Linear Model of ALE ~ Population_Density


```
##  State_FIPS_Code County_FIPS_Code   CHSI_County_Name CHSI_State_Name
##  Min.   : 1.00   Min.   :  1.0   Washington:  32   Texas   : 254
##  1st Qu.:19.00   1st Qu.: 35.0   Jefferson :  26   Georgia : 159
##  Median :29.00   Median : 79.0   Franklin  :  25   Virginia: 134
##  Mean   :30.33   Mean   :103.7   Jackson   :  24   Kentucky: 120
##  3rd Qu.:45.00   3rd Qu.:133.0   Lincoln   :  24   Missouri: 115
##  Max.   :56.00   Max.   :840.0   Madison   :  20   Kansas  : 105
##                                  (Other)   :2987   (Other) :2251
##  Strata_ID_Number      ALE           Poverty           fit
##  Min.   : 1.00    Min.   :66.60   Min.   : 2.20   Min.   :70.11
##  1st Qu.:23.00    1st Qu.:75.00   1st Qu.: 9.80   1st Qu.:75.55
##  Median :44.00    Median :76.50   Median :12.60   Median :76.53
##  Mean   :44.68    Mean   :76.32   Mean   :13.35   Mean   :76.32
##  3rd Qu.:66.00    3rd Qu.:77.70   3rd Qu.:16.20   3rd Qu.:77.29
##  Max.   :88.00    Max.   :81.30   Max.   :36.20   Max.   :79.35
##
```

Linear Model of ALE ~ Poverty

Bibliography:

1. The County Health Rankings & Roadmaps program. (August 30, 2017). Peer Counties Tool.

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2. The County Health Rankings & Roadmaps program. (2020). New Jersey Rankings Data.

Retrieved 30 April 2020, from https://www.countyhealthrankings.org/app/new-jersey/2020/downloads

3. U.S. Government's open data. (February 26, 2020). Community Health Status Indicators (CHSI) to Combat Obesity, Heart Disease and Cancer.

Retrieved 30 April 2020, from https://catalog.data.gov/dataset/community-health-status-indicators-chsi-to-combat-obesity-heart-disease-and-cancer