Lab_03

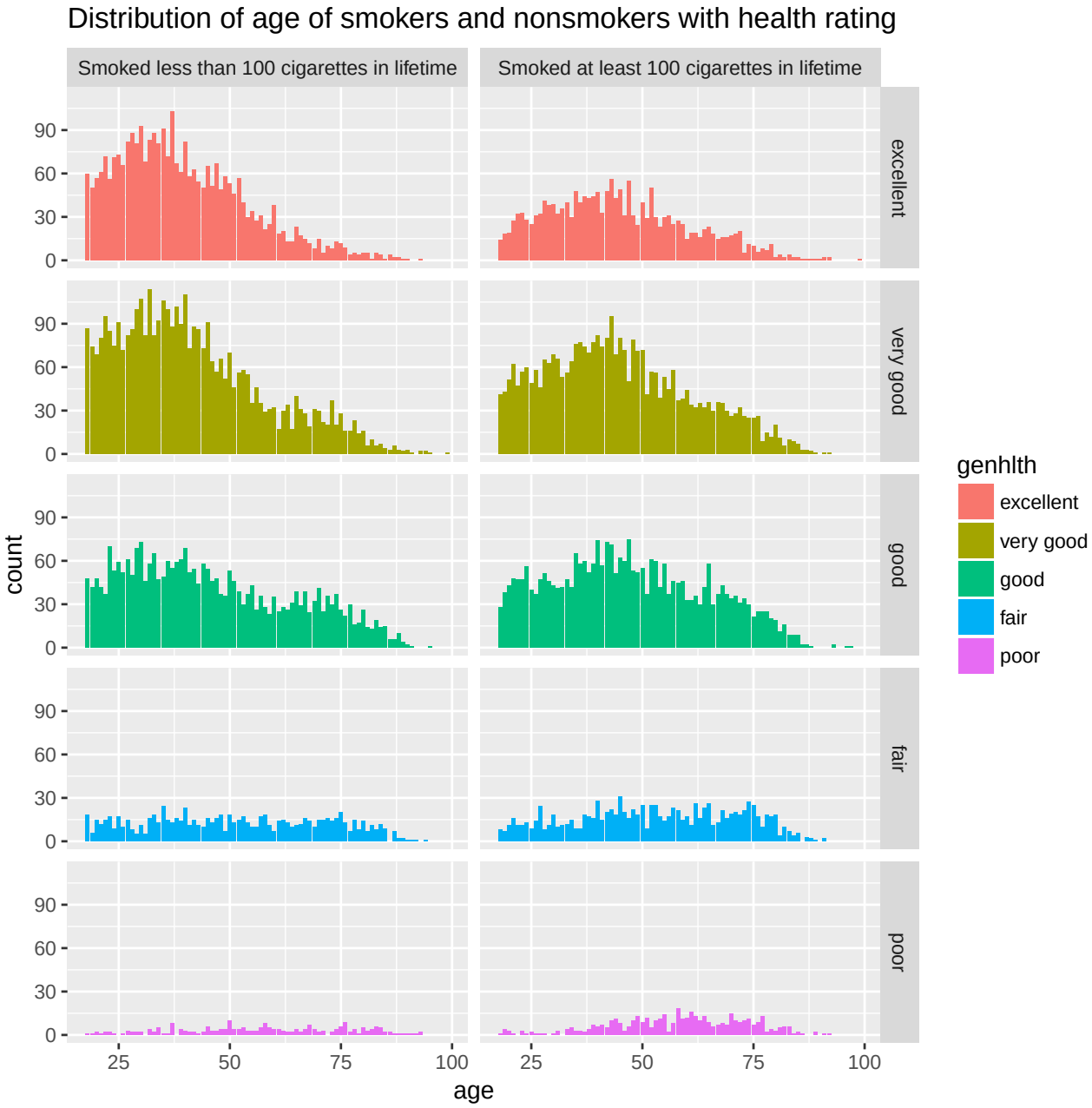
Fantastic Four

Guiding Question

What is the relationship between an individual's health and how much they have smoked throughout their life?

This allows an anaysis of the corelation between somking and health, to support the intuition that smoking is detremential to an individual's health. These implications are significant to educating people and promoting self-care and awarness of an individual's health. As individuals inprove, so does society, which stimulates growth.

Overall Findings



As the graph above indicates, there is a noticable relationship between how an individual rates their health and whether or not they smoke. There is more people with "poor", and "fair" health that have smoked a significant amount in their life. In contrast, many more non-smokers which rated their health as "exelent". This demonstrates the inverse relationship between smoking and health; people which smoke less generally feel healthier. It is important to also consider the limitations, based on the data set, that lower health ratings could also connect to older, or overweight individuals as well as how frequently they reported to have exercised.

Conclusion

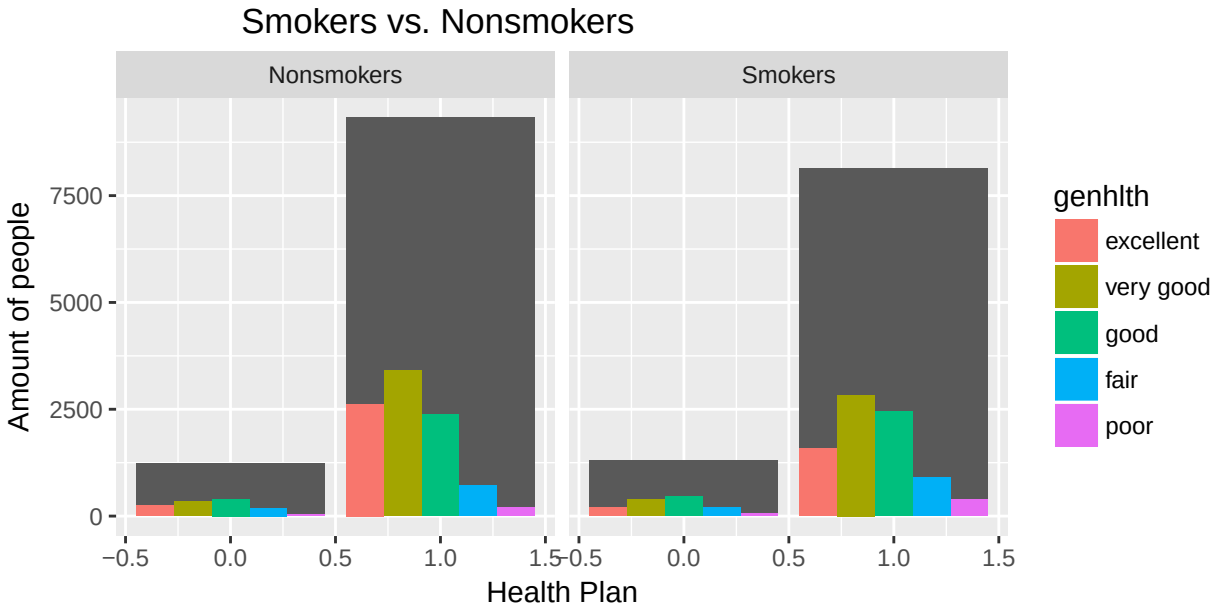
Conducting this report, we have found that smoking leads to a lower quality of health. People who have smoked at least 100 cigarettes have increased numbers in the lower quartile of the general health rating than the people who haven't smoked. This cascades into smokers weighing more than nonsmokers, which goes along with data that we found people who have exercised in the past month weigh less than the people who haven't. This supports the claim, that smoking is harmful to a person's health and wellbeing.

Recommendation

Dear CDC: Based on our findings that negative quality of life has a correlation with smoking habits, the following are our recommedations: *Allocate resources to creating advertisements about the effects of smoking and how it can contribute to poor health* Encourage voters and politicians to introduce and lobby for stricter smoking laws *Reach out to insurance companies to make sure they warn their customers about the possible effects of smoking

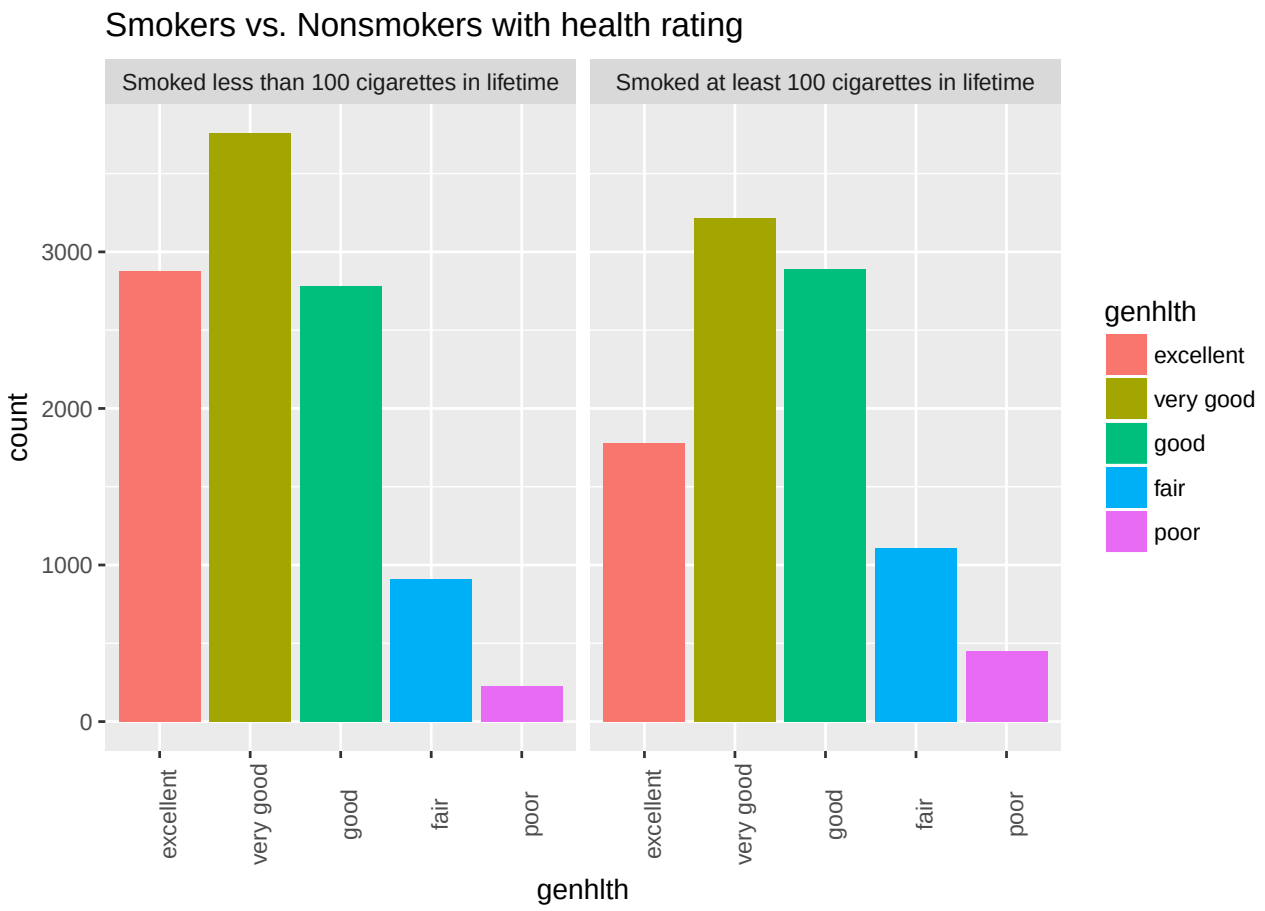
Individual Findings

Lexie Marinelli

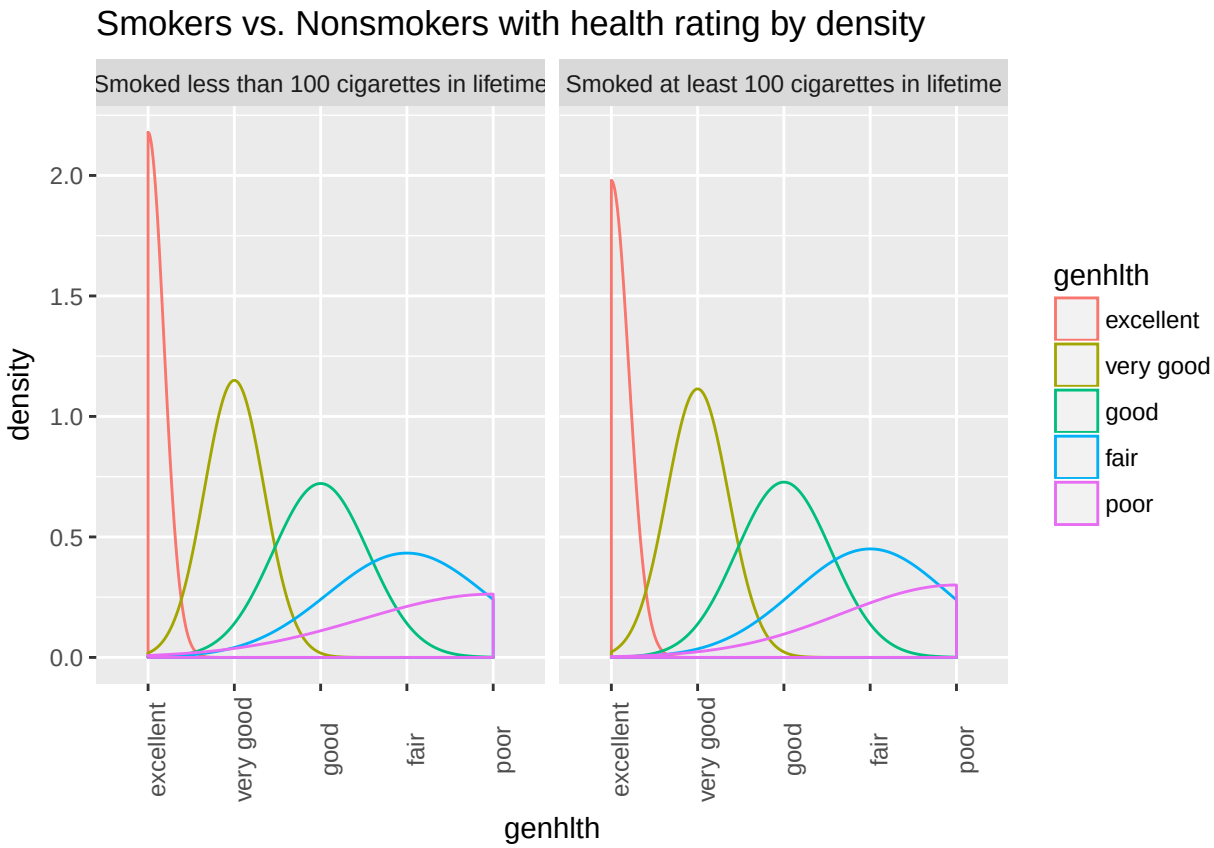


This graph portrays that nonsmokers have a higher amount of people in excellent and very good health as well as having a lower amount of people with fair and poor health. This graph also shows that the majority of people, in general, have health insurance not depending on whether they smoke or not. Smokers do have a lower amount of people who have a health plan, but not by a significant amount. The main difference between the smokers and nonsmokers is the general health distribution among the individuals, nonsmokers having a higher amount in the upper quadrant and a lower amount of people in the lower quadrant compared to people who have smoked at least 100 cigarettes.

```
sub<-c('0'="Smoked less than 100 cigarettes in lifetime", '1'="Smoked at least 100 cigarettes in lifeti
ggplot(data=cdc, mapping=aes(x=genhlth, fill=genhlth)) + geom_bar() + facet_wrap(~smoke100, labeller = l
```




```
ggplot(data=cdc) + geom_density(mapping=aes(x=genhlth, color=genhlth)) + facet_wrap(~smoke100, labeller
```



The bar graph demonstrates how many people rated their health given the chocie of 5 categories, and the side by side graphs distiguish between people that smoked. It is evident from the graph, that overall, smokers rated there health in the categories in "good" or below and non-smokers reported many more "exelent" or "very good" ratings. The second graph reprents the same information but is based on density, rather than count, which illustrates the distribution of indiviuals based on how they rated their health. It is still evident that smokers generally rated their health lower.

Zhenlong Li

I found that people who smoked at least 100 cigars above good health condition are less than the people who did not. What's more, for condition below good, the amount of people who smoked are larger than people who did not.

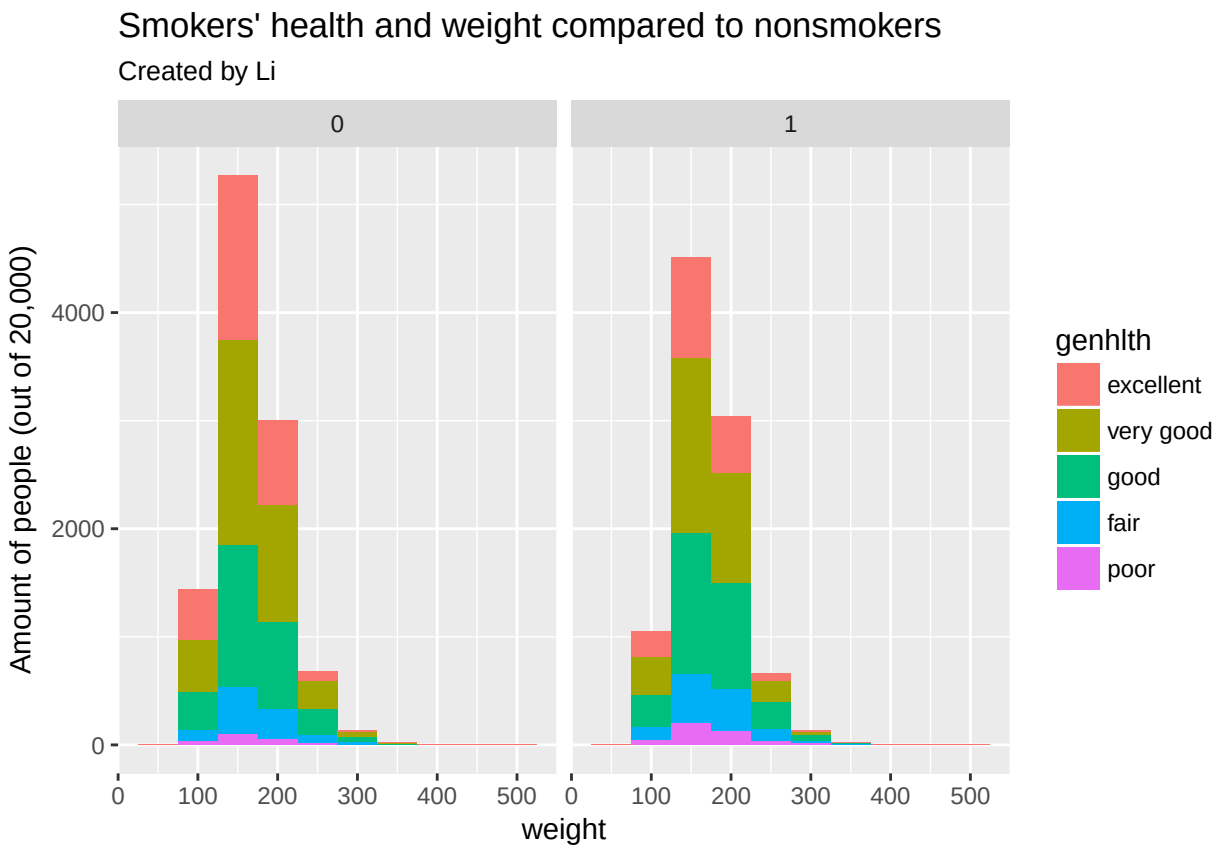
In terms of weight, I found that people who weighed around 150 pounds without smoking are mojority of the people who have excellent health condition, while people who weighed around 150 pounds smoked at least 100 cigars are majority of the people who have poor health condition.

Additionaly, for people who exercised in the past month, majority of them has the health condtion above good. For people who did not exercised in the past month, majority of them has the health condtion below good.

Thus, we can conclude that smoking and exercise did influence a person's health but only frequency of exercises affect person's weight according to my findings. Also, weight may not be a strong factor to a person's general health condition.

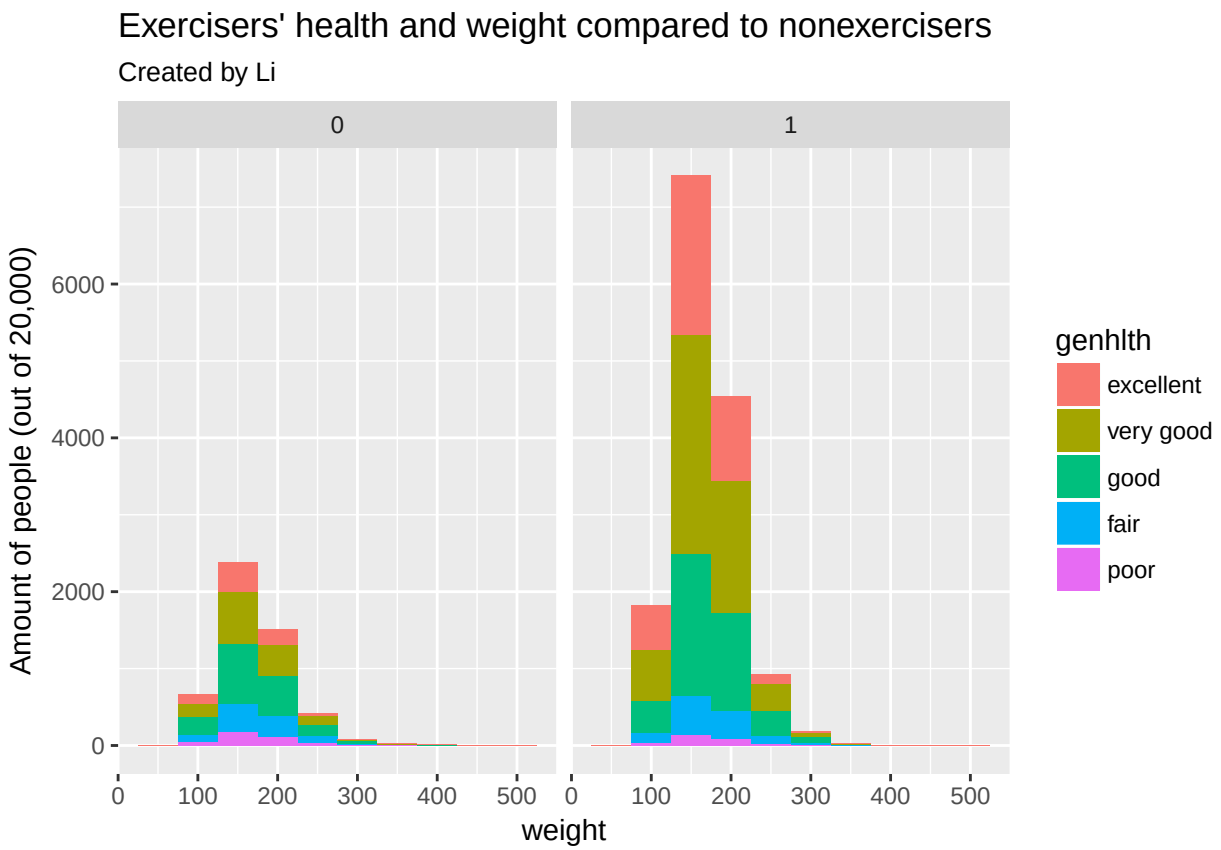
Hers's a plot about Smokers' health and weight compared to nonsmokers:

```
ggplot(cdc, aes(weight, fill = genhlth)) +
  geom_histogram(binwidth = 50) + facet_grid(~smoke100) + ggtitle(label = "Smokers' health and weight c
```



And another plot about Exercisers' health and weight compared to nonexercisers:

```
ggplot(cdc, aes(weight, fill = genhlth)) +
  geom_histogram(binwidth = 50) + facet_grid(~exerany) + ggtitle(label = "Exercisers' health and weight
```



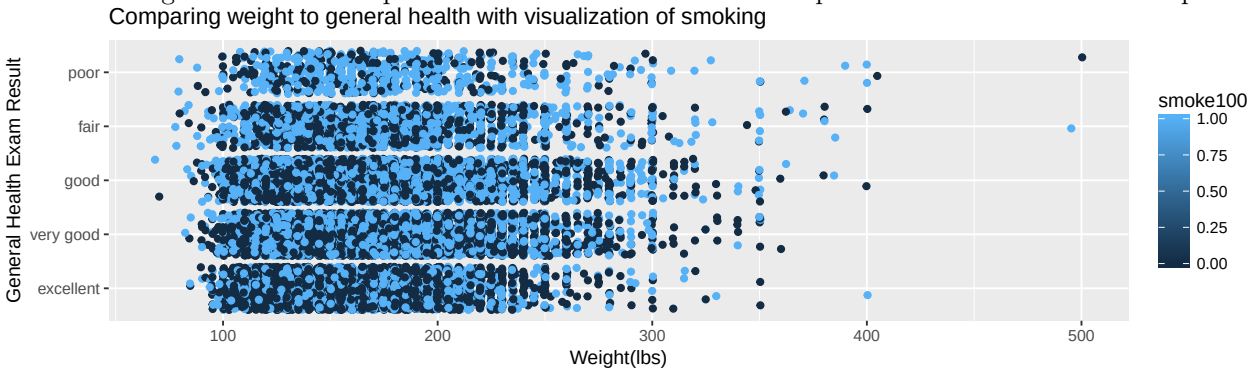
Scott Baker

The three following graphs are similarly composed but I found them to be visually appealing to me using the jitter function and a color function with another variable.

Here are my general findings, which tend to follow intuition:

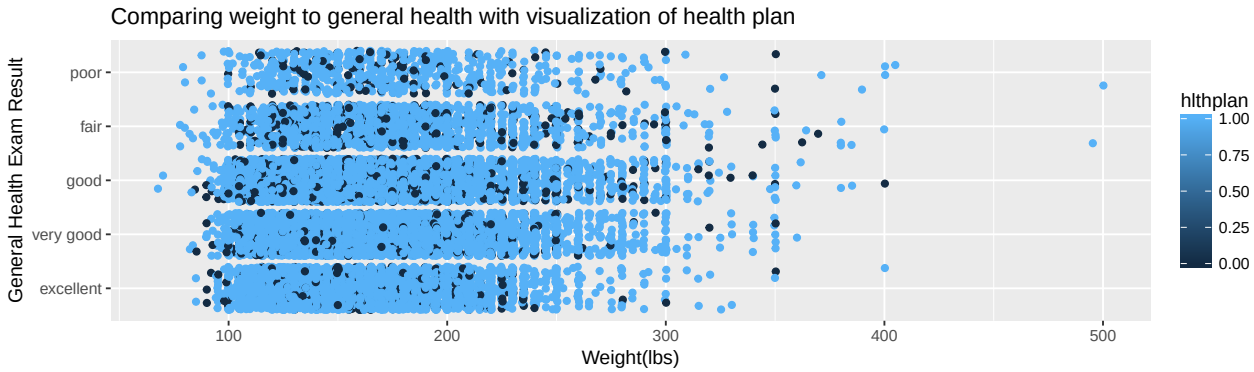
- There is a larger density of people who smoke that result in 'poor' health
- There is a smaller density of people who are in 'poor' health and have a health plan
- It is more likely that older people have poor health compared to younger people
- In general, there are more people who weight more in the 'poor' health category

The following graph shows that there is a general increase in people who smoke and their general health exam–more light blue dots compared to dark blue dots where the person's health is considered 'poor':

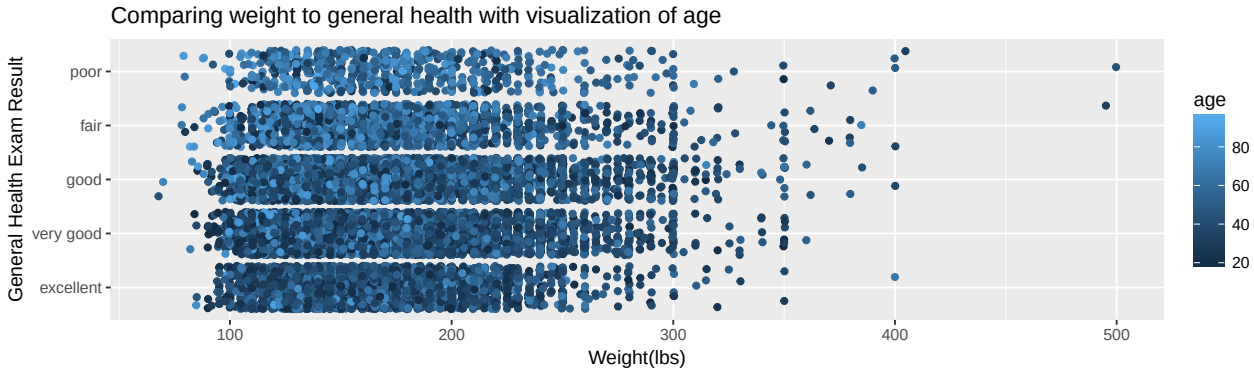


The following plot shows that there is a slight decrease in dark blue dots (no health plan) as the general

health exam result gets worse.



The following graph shows that there is a decrease in health exam result as age goes up–fewer darker dots in the 'poor' catagory than in the 'excellent' catagory.



Contributions

*Lindsay: Constructed the basic graph for the response to the question. I also created a bar graph showing how many people responded to each general health category. I utilized a geom_bar plot as well as facet_wrap to seperate the data by smokers and non-smokers. I also used a few astetic functions in order to change the title, the color of each bar for rating, the orientation of the x-axis, and the grid seperation titles. The data showed a trend that more lower health ratings correlated to smokers. These adjustments make the graph easy to read and understand as well as compare between smokers and non-smokers.

*Lexie: Iniated the guiding question and the analysis of the data in regards to smoking habits, also wrote the conclusion. Created a nested bar graph, which on the basic level shows the amount of smokers and nonsmokers. Nested within is a bar graph which signifies how many peopled ranked their health in each of the categories. Using facet_grid, the bar graphs were split into smoker and nonsmoker, then other functions accounted for the labeling of the axis and title, and the color coding by health ranking.

*Li: I made two barplots, one is showing the how people's general health conditions was affcted by using gemo_histogram to show amount of people, their weights and facet_grid to divide into smokers and non smokers. Another one is also showing the how people's general health conditions was affcted by using gemo_histogram show amount of people, their weights and facet_grid to divide into exercisers and non exercisers. I added title and set the binwith of histogram to 50 pounds.

*Scott: First, I managed in the origanization of the git. Regarding the actual write up in individual section, I looked at quality of health with age, smoking, and heal plan. For the team part, I made the recommendation to the CDC. I did some editing and was responsible for knitting/submitting the final items to OSF.