

SAS VISUAL PROJECT

Mrinal Bhatt

ISMG 6220

The assignment worked on is done in two parts. The first part , i.e. Part 1 talks about the reports for the Toys Corporation. The report includes key facts about company's performance on a global and regional level. These facts include both financial and marketing related data.

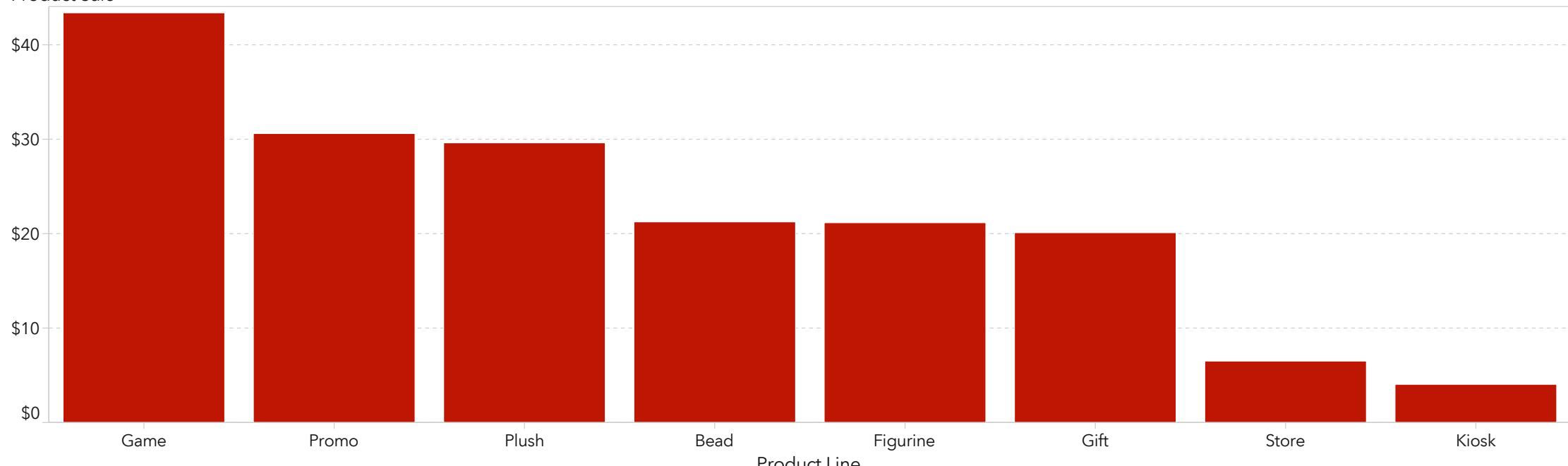
Whereas the Part 2 of the assignment focuses on a healthcare consulting company and uses data visualization techniques in order to investigate specific business or social problems.

We start of with Part 1 - Reports. The reports created have filters would show distinct readings based on the selection.

And then focus on answering the Part 2 - Hypothesis.

Product Line Sales over Months with Detailed Production Cost through Continent

Product Sale



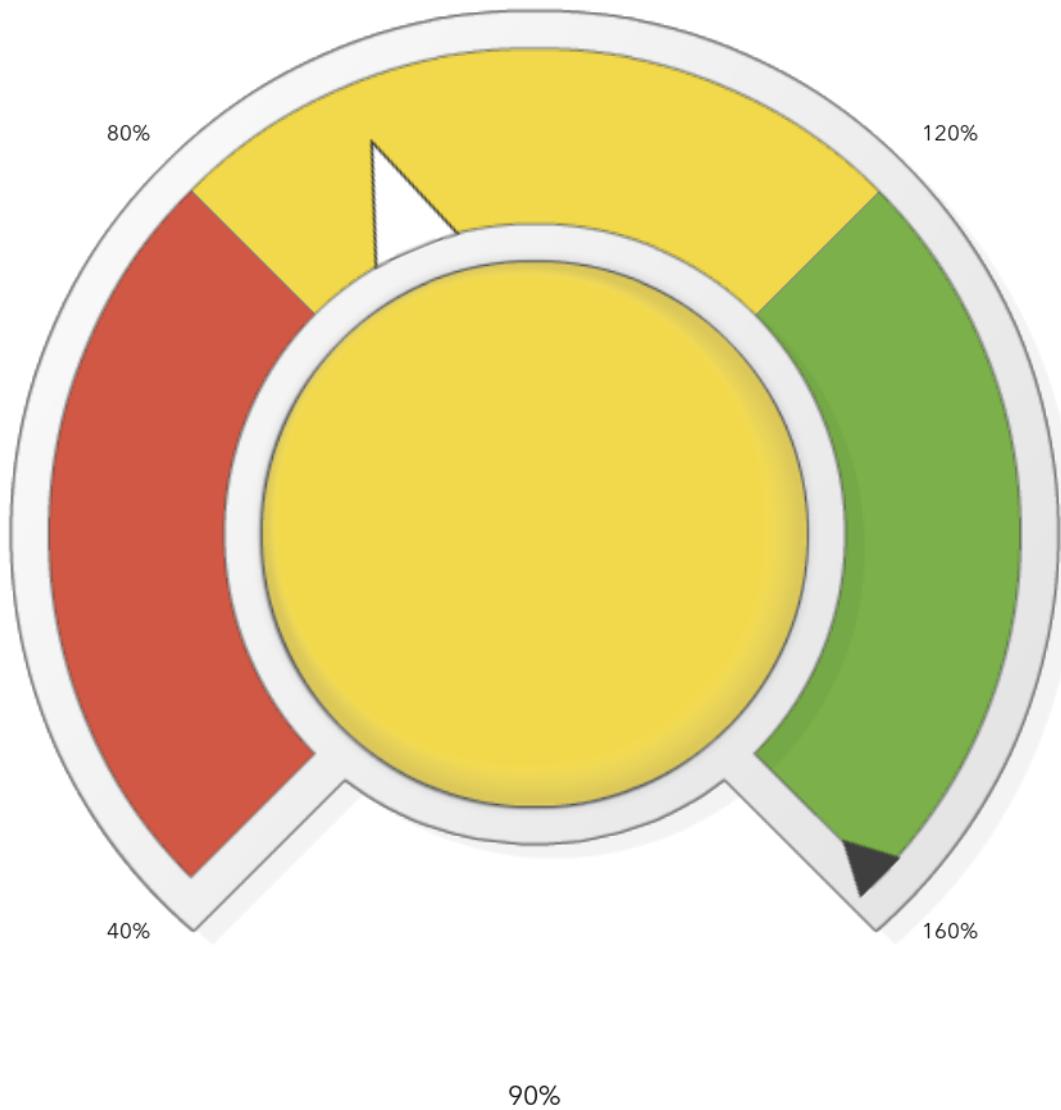
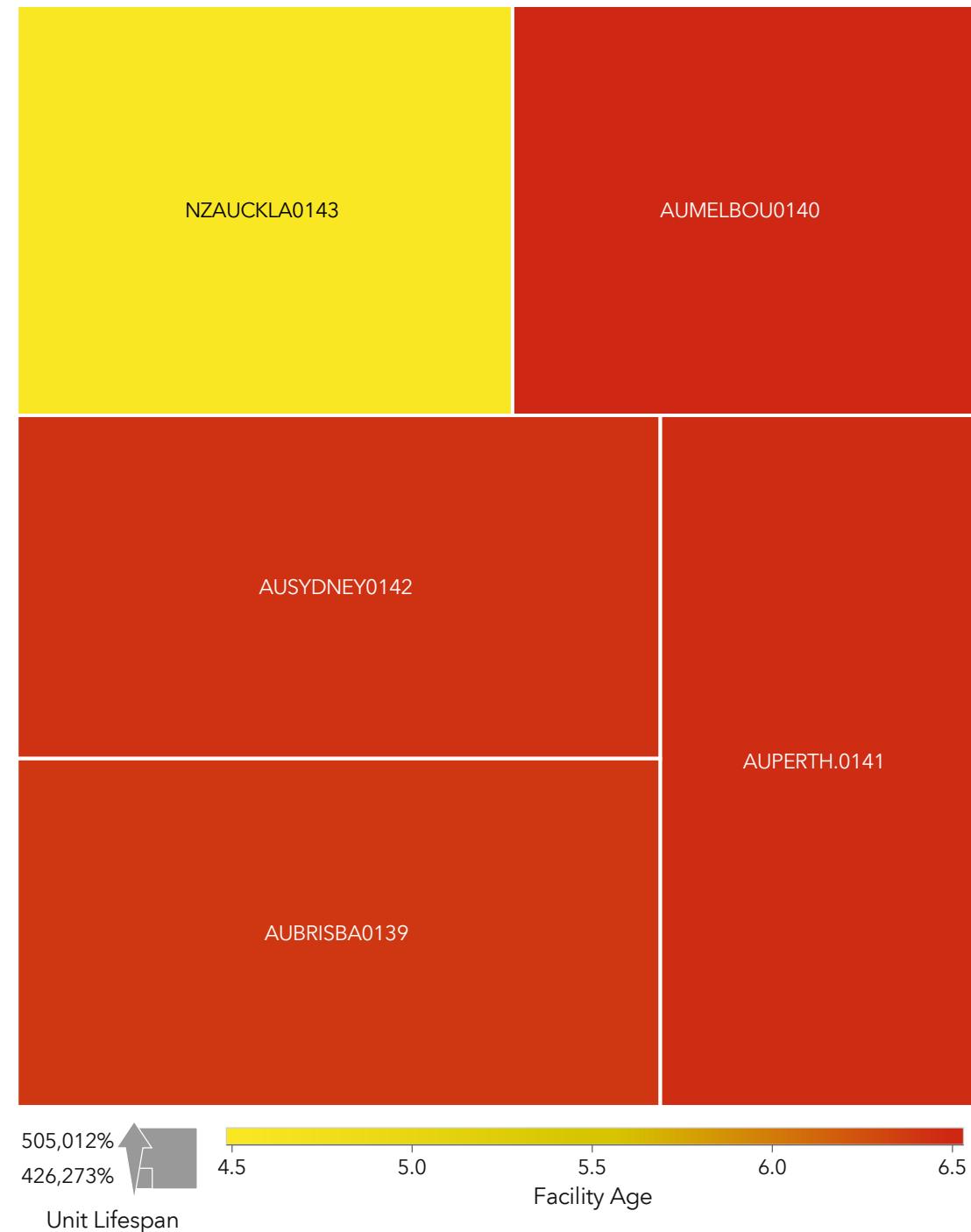
▼ A1.1

| Product Brand ▲ | Novelty | | | Toy | | |
|-----------------|-----------------------|----------------------|------------------------|-----------------------|----------------------|------------------------|
| Product Line ▲ | Product Material Cost | Product Cost of Sale | Product Price (target) | Product Material Cost | Product Cost of Sale | Product Price (target) |
| Bead | \$609 | \$5,363 | \$6,094 | . | . | . |
| Figurine | . | . | . | \$4,019 | \$22,493 | \$25,722 |
| Game | . | . | . | \$5,740 | \$22,486 | \$27,724 |
| Gift | \$947 | \$4,144 | \$4,934 | . | . | . |
| Kiosk | \$1,255 | \$6,418 | \$7,274 | . | . | . |
| Plush | . | . | . | \$2,465 | \$13,247 | \$22,454 |
| Promo | \$899 | \$4,152 | \$5,040 | . | . | . |
| Store | \$644 | \$3,121 | \$3,654 | . | . | . |

▼ A1.2

Facility Lifespan corellation with Age and Efficiency based on No. Employees through Three Continent

Facility

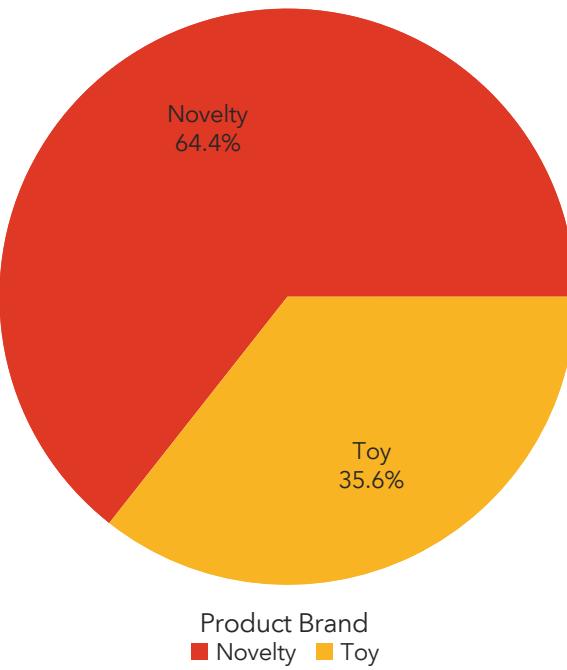


▼ A2.1

▼ A2.2

Customer Satisfaction with Brand and Product Quality and Sale over Time in Different Countries

Customer Satisfaction



▼ A3.1

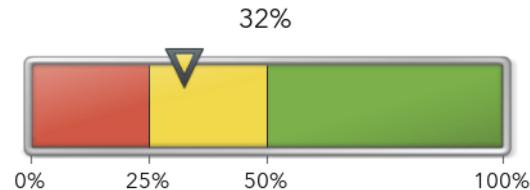
Product Quality / Product Sale (millions)



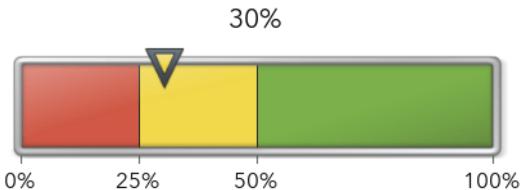
▼ A3.2

Sales Rep Rating by City

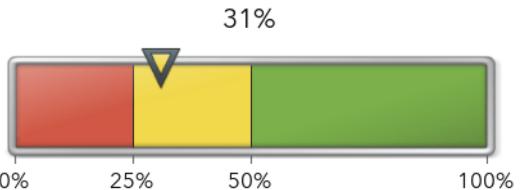
Albuquerque



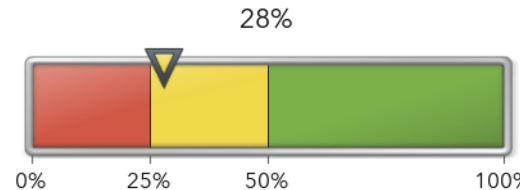
Atlanta



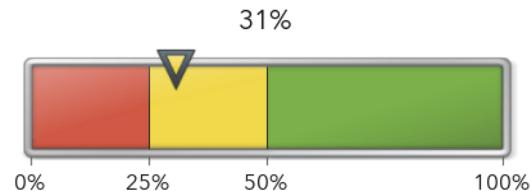
Auckland



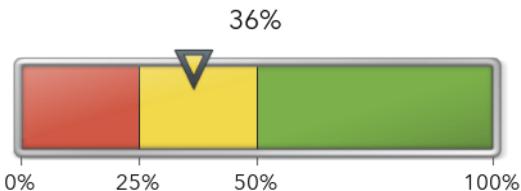
Austin



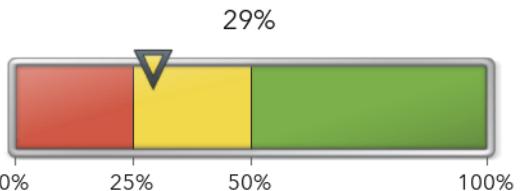
Baltimore



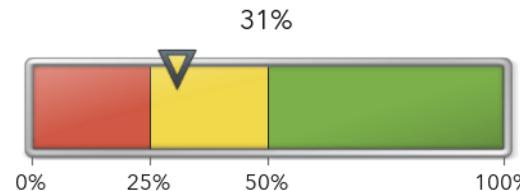
Barcelona



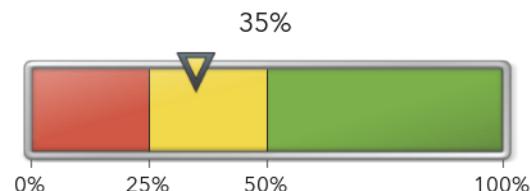
Baton Rouge



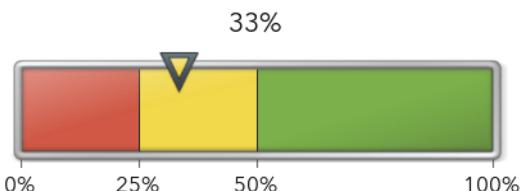
Beijing



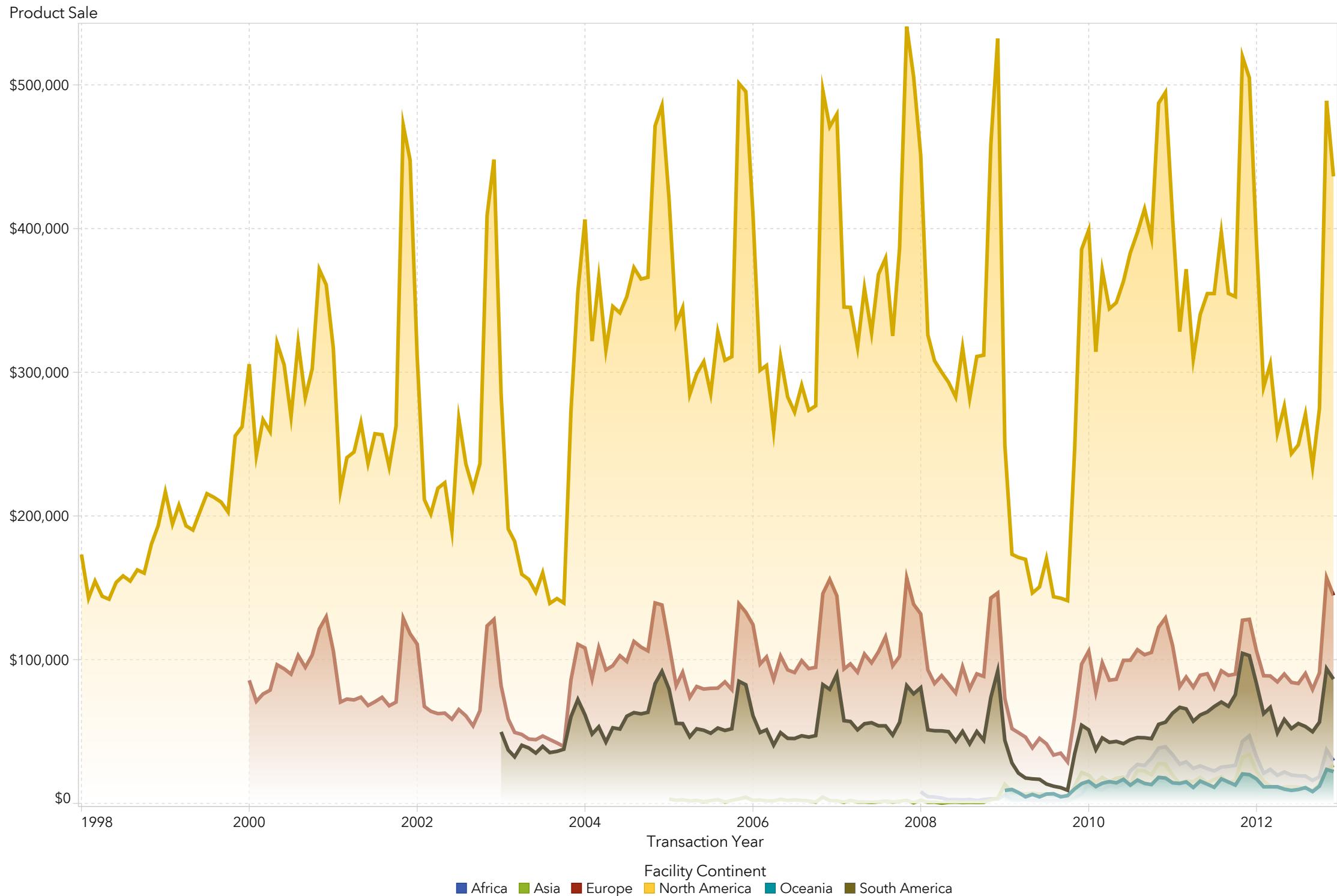
Belo Horizonte



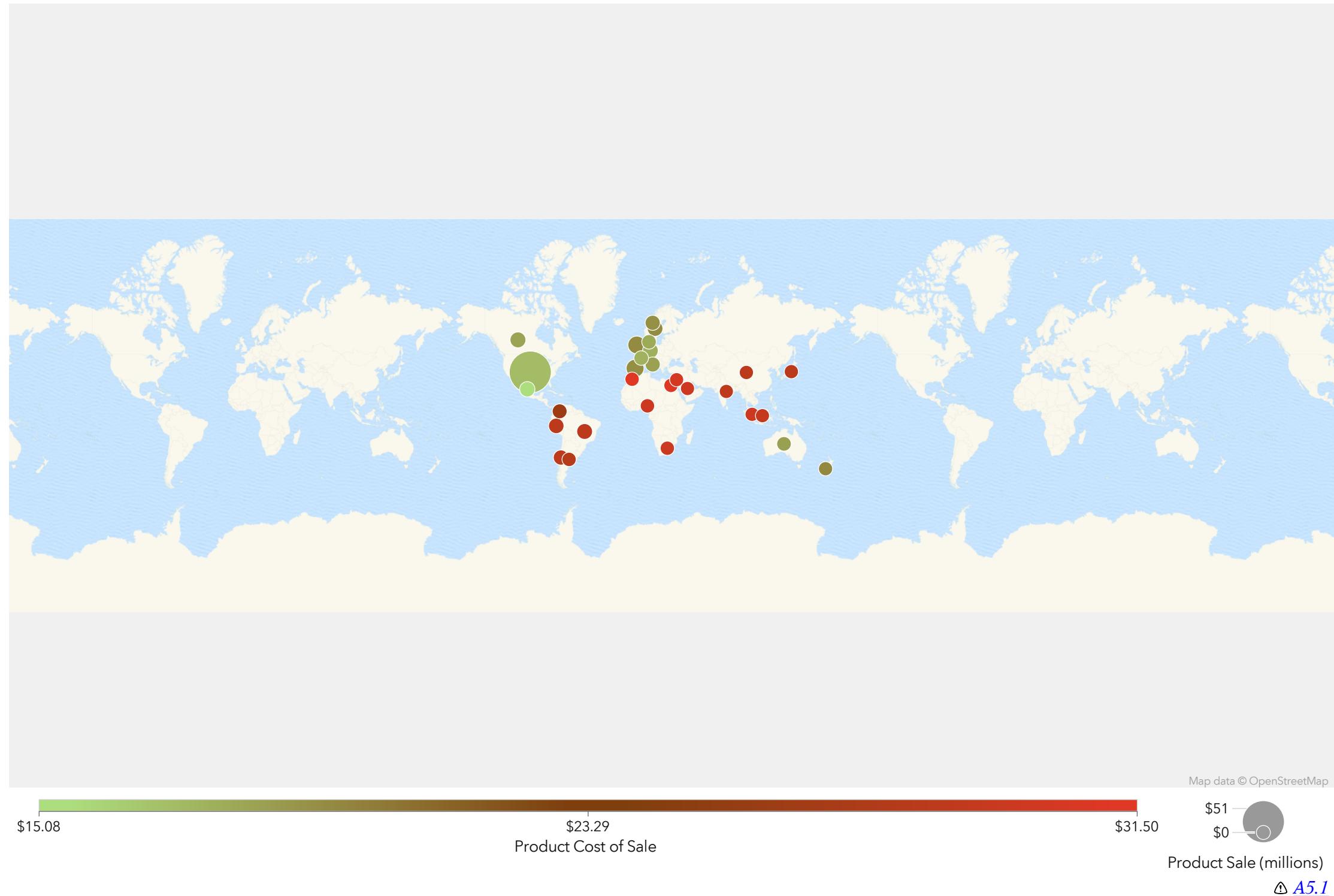
Berlin



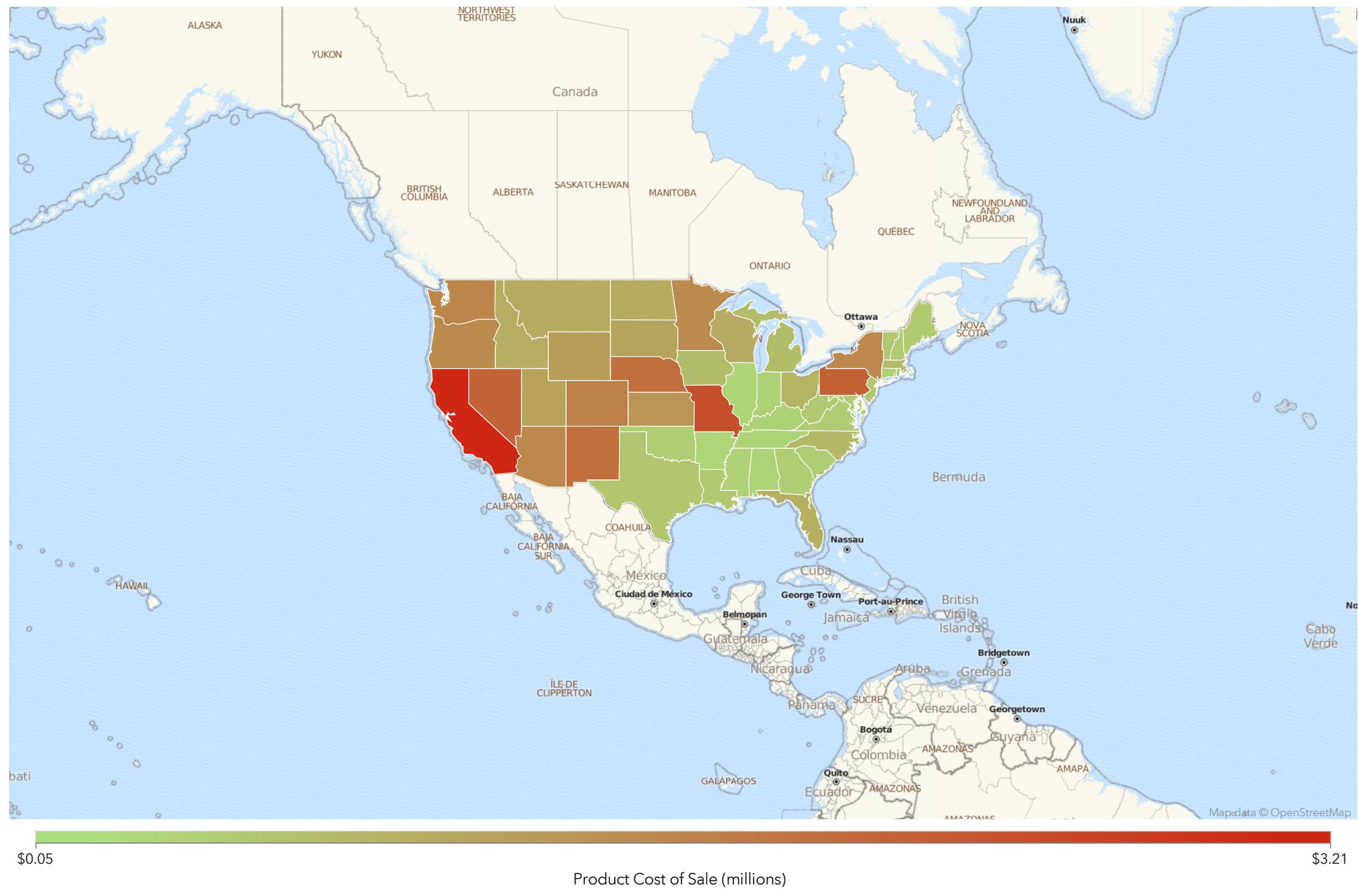
Product Sale with Facility Continent over Last Five Years



Product Cost of Sale and Product Sale by Country

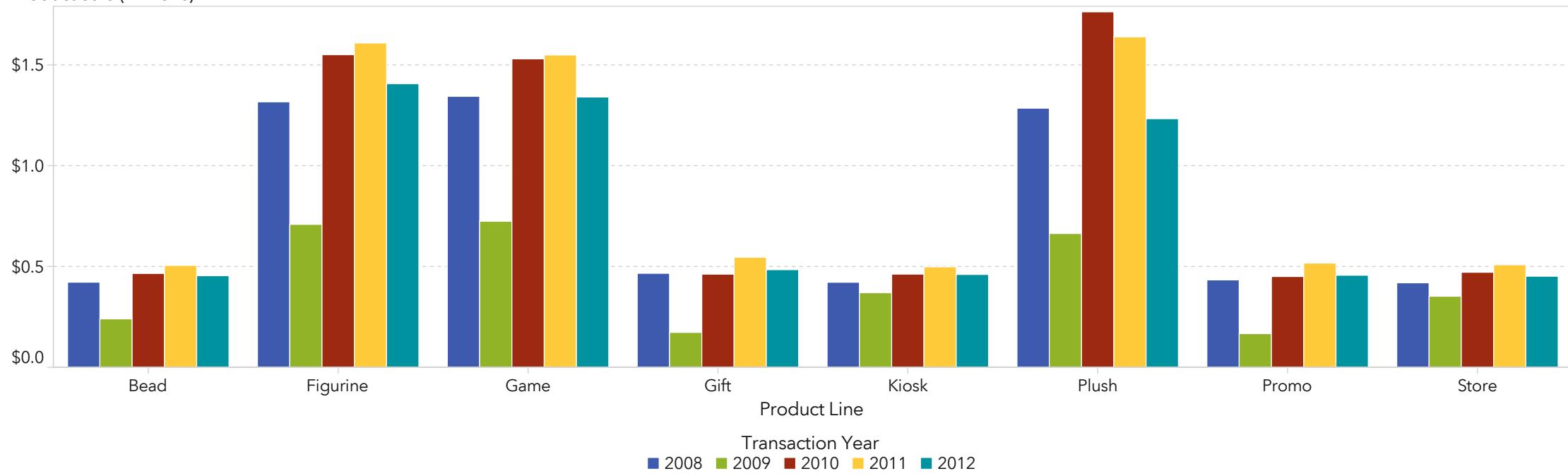


Product Cost of Sale by U.S. Region



Product Overview

Product Sale (millions)



▼ A7.1

| Facility Count | Argentina | | Australia | | Brazil | | Canada | | Chile | | China |
|----------------|--------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|
| Product Line | Product Sale | Product Cost of Sales | Product Sale |
| Bead | . | . | \$47,046 | \$43,605 | . | . | \$145,204 | \$134,218 | . | . | . |
| Figurine | \$78,042 | \$72,304 | \$89,043 | \$82,511 | \$565,233 | \$523,485 | \$332,453 | \$307,941 | \$367,849 | \$340,661 | \$46, |
| Game | \$69,852 | \$59,942 | \$92,380 | \$79,229 | \$550,384 | \$474,307 | \$324,440 | \$280,679 | \$355,575 | \$305,922 | \$45, |
| Gift | . | . | \$36,184 | \$32,090 | . | . | \$167,176 | \$148,311 | . | . | . |
| Kiosk | . | . | \$44,344 | \$40,981 | . | . | \$164,462 | \$151,847 | . | . | . |
| Plush | \$75,521 | \$48,431 | \$92,001 | \$58,282 | \$553,524 | \$354,560 | \$333,943 | \$212,162 | \$347,452 | \$221,638 | \$47, |
| Promo | . | . | \$41,460 | \$35,241 | . | . | \$155,169 | \$132,871 | . | . | . |
| Store | . | . | \$37,236 | \$32,509 | . | . | \$179,969 | \$157,075 | . | . | . |

A7.2

A1.1

Bar Chart 1

Ranks

Top 8 of Product Line (including ties) by Product Sale

Filters

(Transaction Year BetweenInclusive(01Jan2008; 01Jan2012)) OR Transaction Year Missing
Transaction Month = 01Dec2009
Facility Continent = 'Europe'

A1.2

Crosstab 1

Filters

Facility Continent = 'Europe'
Transaction Month = 01Dec2009

A2.1

Treemap 1

Filters

Facility Continent = 'Oceania'

A2.2

Gauge 2

Filters

(Product Brand In('Novelty')) OR Product Brand Missing
Facility Continent = 'Oceania'

Display Rules

KPI

- $0.4 \leq x < 0.8$
- $0.8 \leq x < 1.2$
- $1.2 \leq x \leq 1.6$

A3.1

Pie Chart 1

Filters

Facility Country = 'United Kingdom'
Transaction Year = 01Jan2011

A3.2

Line Chart 1

Filters

Transaction Year = 01Jan2011
Facility Country = 'United Kingdom'

A4.1

Gauge 1

Warnings Only some of the data appears because there is too much data to display. Filter your data to show different values.

Display Rules

KPI

- $0 \leq x < 0.25$
- $0.25 \leq x < 0.5$
- $0.5 \leq x \leq 1$

A5.1

Geo Bubble Map 1

Warnings Some features may not be displayed on the map because of missing location information in the data.

A6.1

Geo Region Map 1

Warnings The geo region map is not displaying some regions because the data did not match known geographic regions.

A7.1

Bar Chart 2

Filters (Transaction Year BetweenInclusive(01Jan2008; 01Jan2012)) OR Transaction Year Missing

A7.2

Cross Chart

Display Rules

Product Sale

- Product Sale greater than or equal to \$80,000

Product Cost of Sale

- Product Cost of Sale less than \$50,000

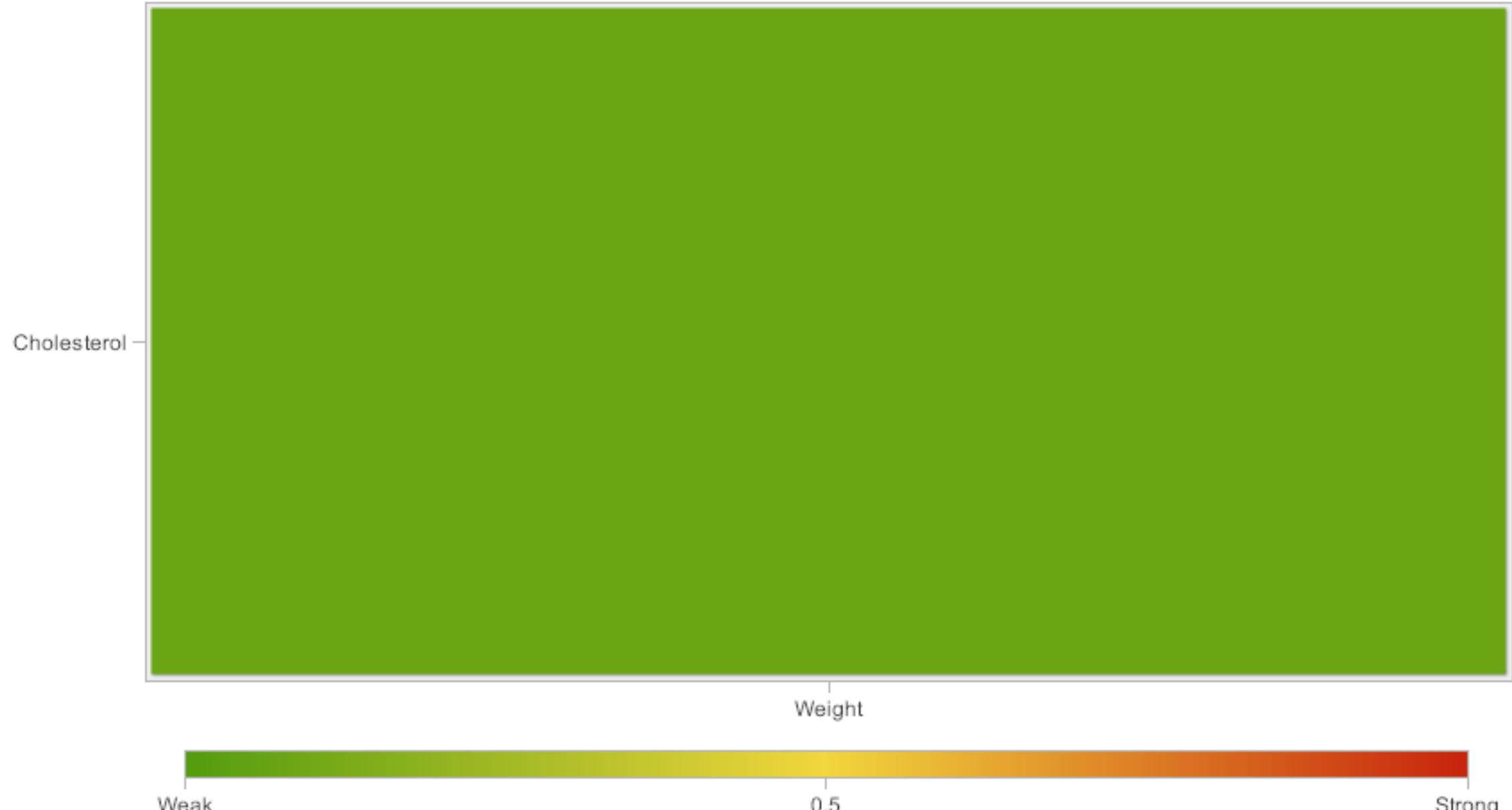
Part 2

Creation date: Monday, December 4, 2017

Author: Mrinal Bhatt

The information presented here works in relation with the hypothesis that was given. These visual representation were created to check whether the hypothesis were true or false. Along side with the hypothesis we look into the assumptions made for CHD and check if the information that's given correlates with CHD or not.

Correlation of selected measures

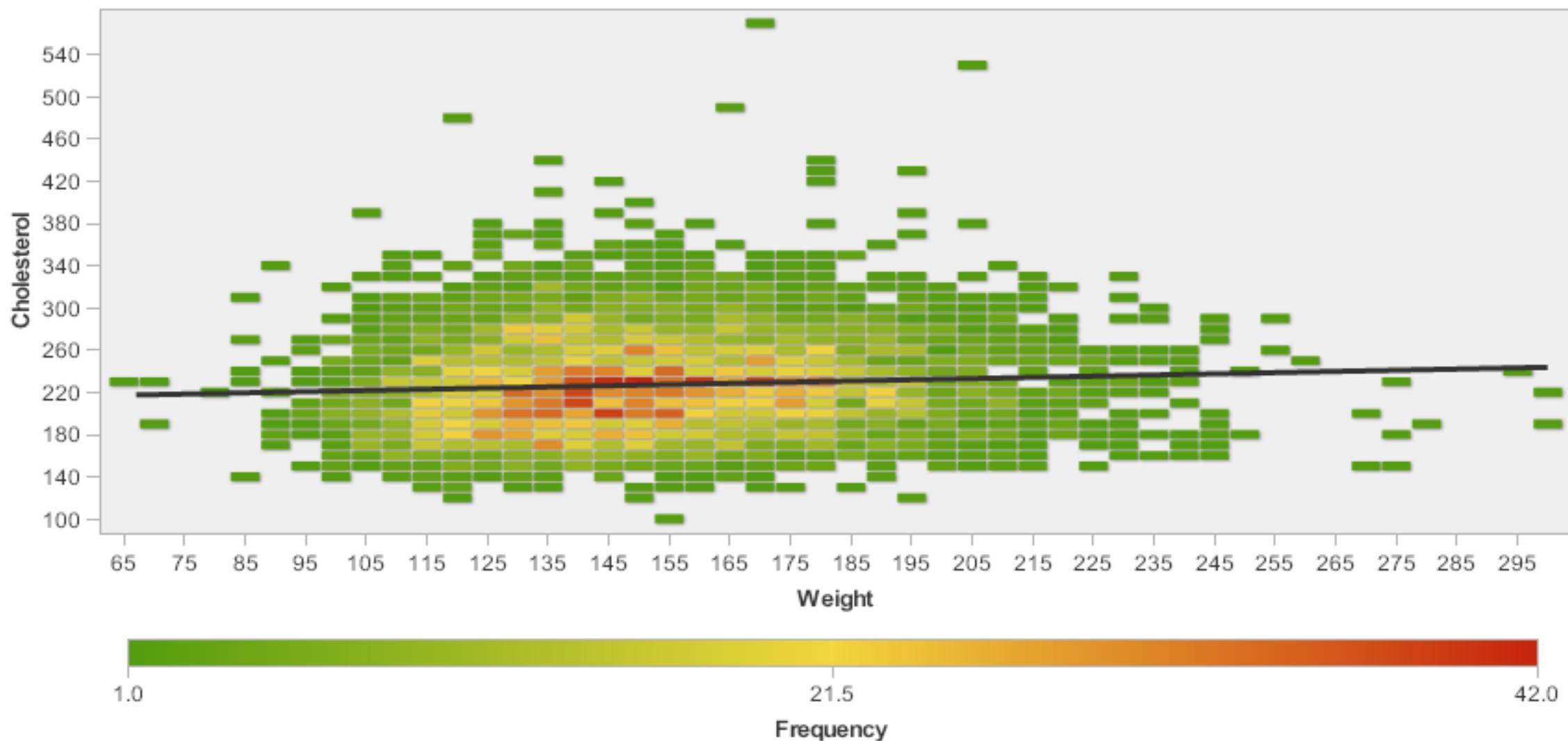


Filters: None

Ranks: None

H1: Looking the visual presented in 1 and 1.1 we can notice that there is a very weak correlation between 'Weight' & 'Cholesterol'. In the visual 1.1 we notice a weak upward trend for this correlation.

Frequency of Weight and Cholesterol



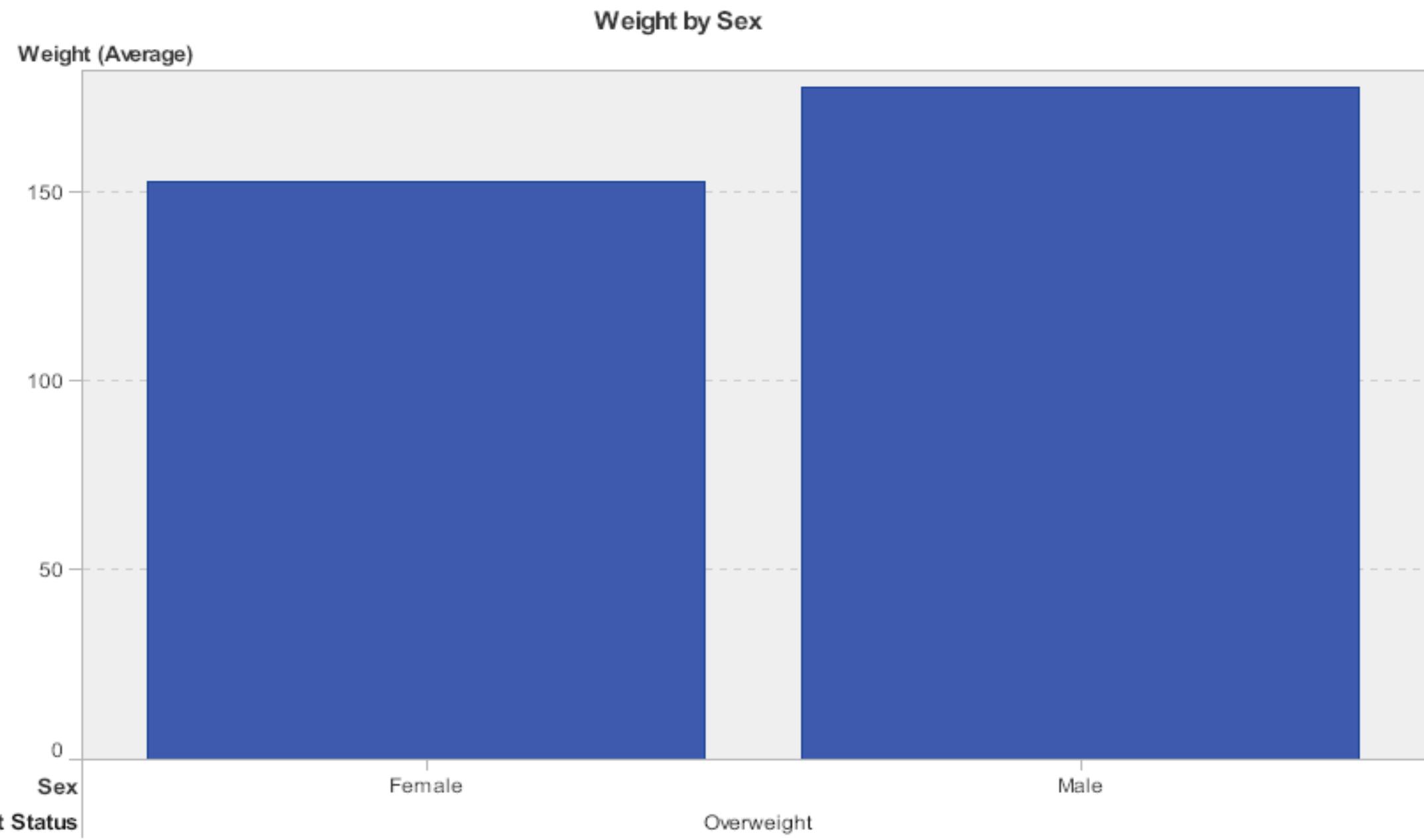
Correlation: Weak linear relationship

Linear Fit Line:

Filters: None

Ranks: None

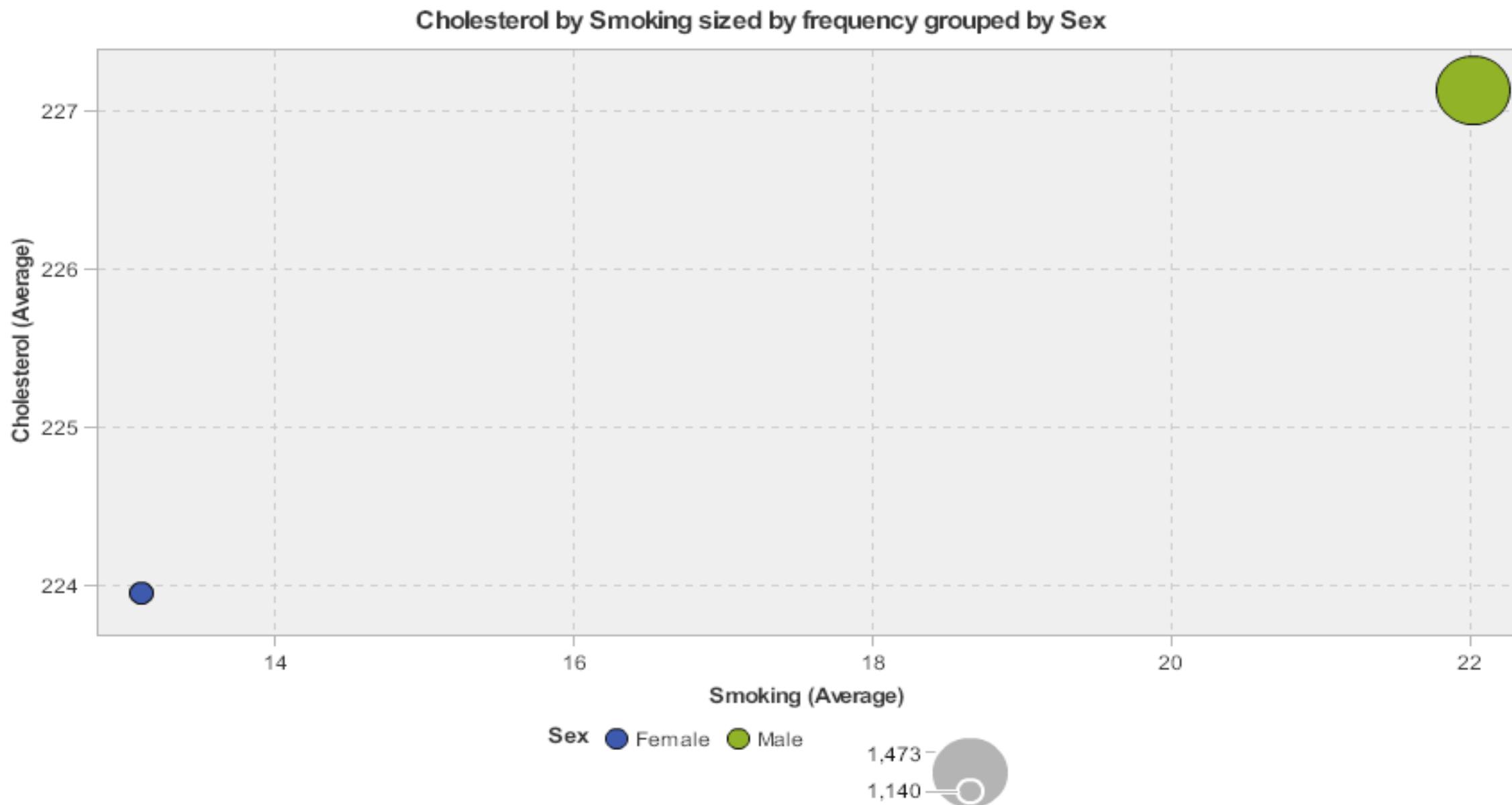
H1: Since there is a correlation we can say that the hypothesis is true.



Filters: Weight Status NotIn (Normal, Underweight) AND Weight Status NotMissing

Ranks: None

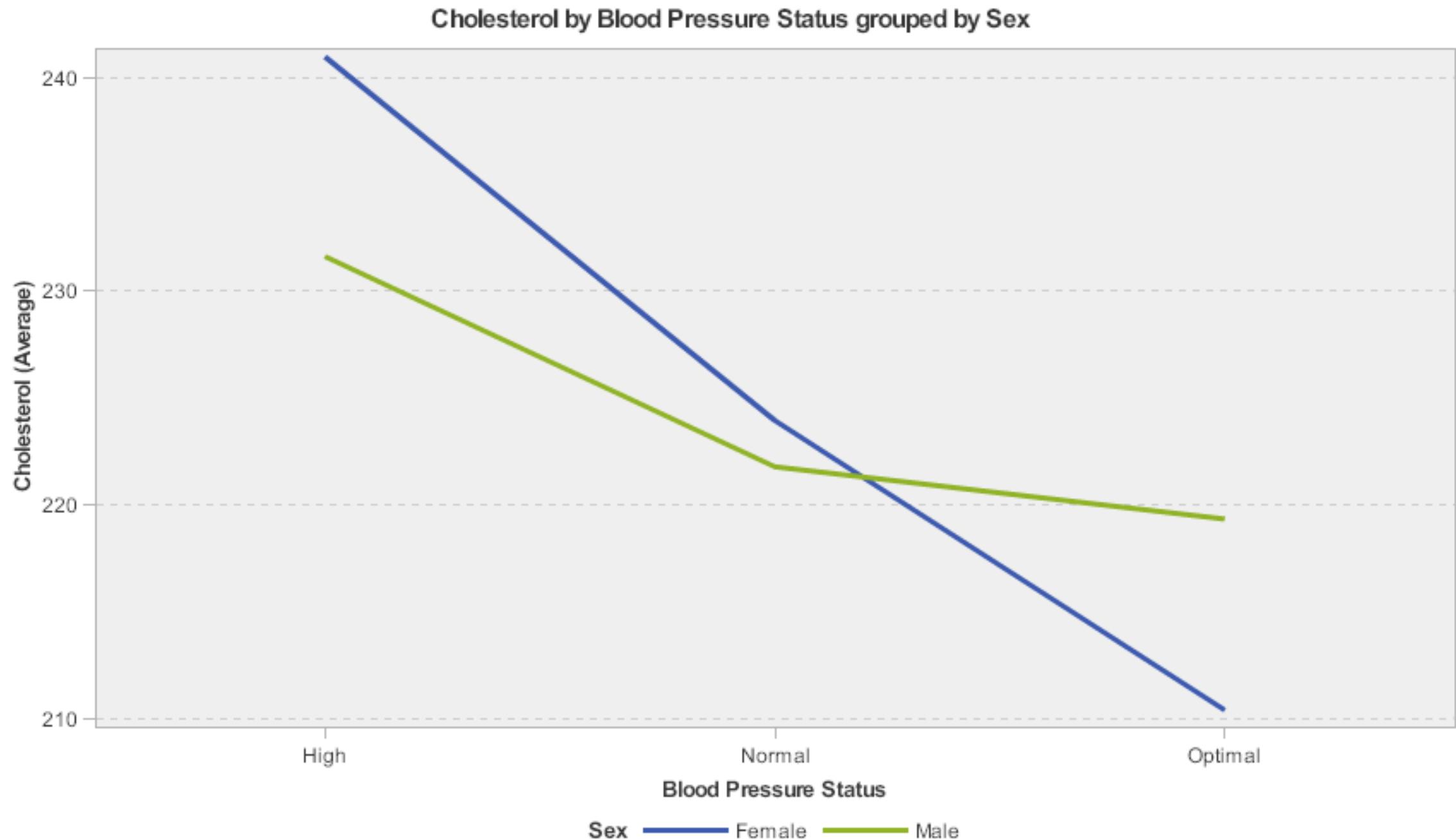
H2: Here with the bar graph we can see that men are more overweight than women, and by a big margin. What we can only assume is that down the line this turns into obesity and hence proving our hypothesis true that men are more obese than women.



Filters: "Smoking Status NotIn (Non-smoker) AND Smoking Status NotMissing" AND "Cholesterol Status NotIn () AND Cholesterol Status NotMissing"

Ranks: None

H3: This one is a false hypothesis. We can see that not only do women smoke less than men but also have less cholesterol than them.

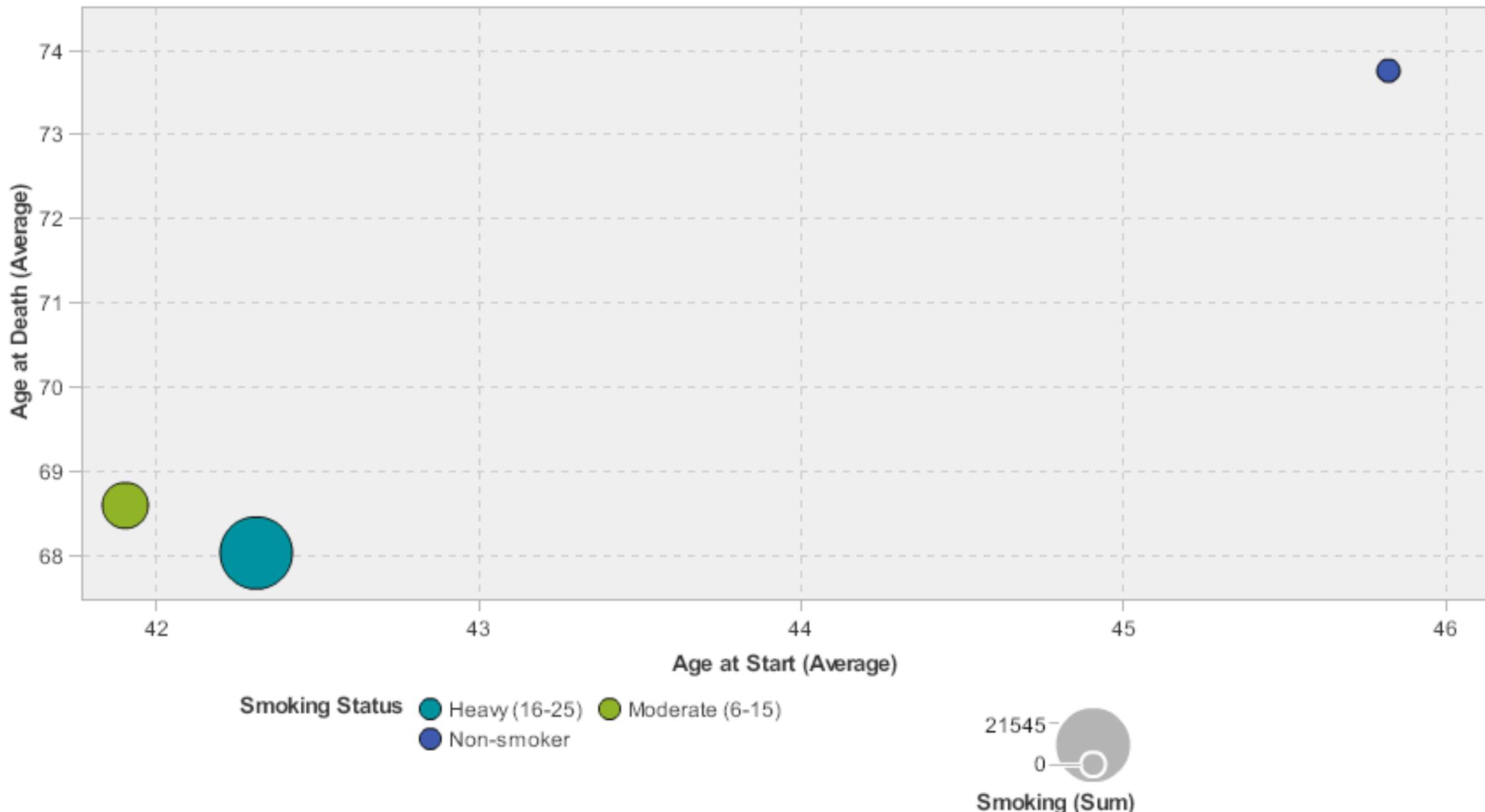


Filters: Cholesterol BetweenInclusive(96, 568) AND Cholesterol NotMissing

Ranks: None

H4: This is a very straight forward one. We can see that higher the blood pressure the more the cholesterol is and it implies for both male and female. Hence, this hypothesis is true.

Age at Death by Age at Start sized by Smoking grouped by Smoking Status

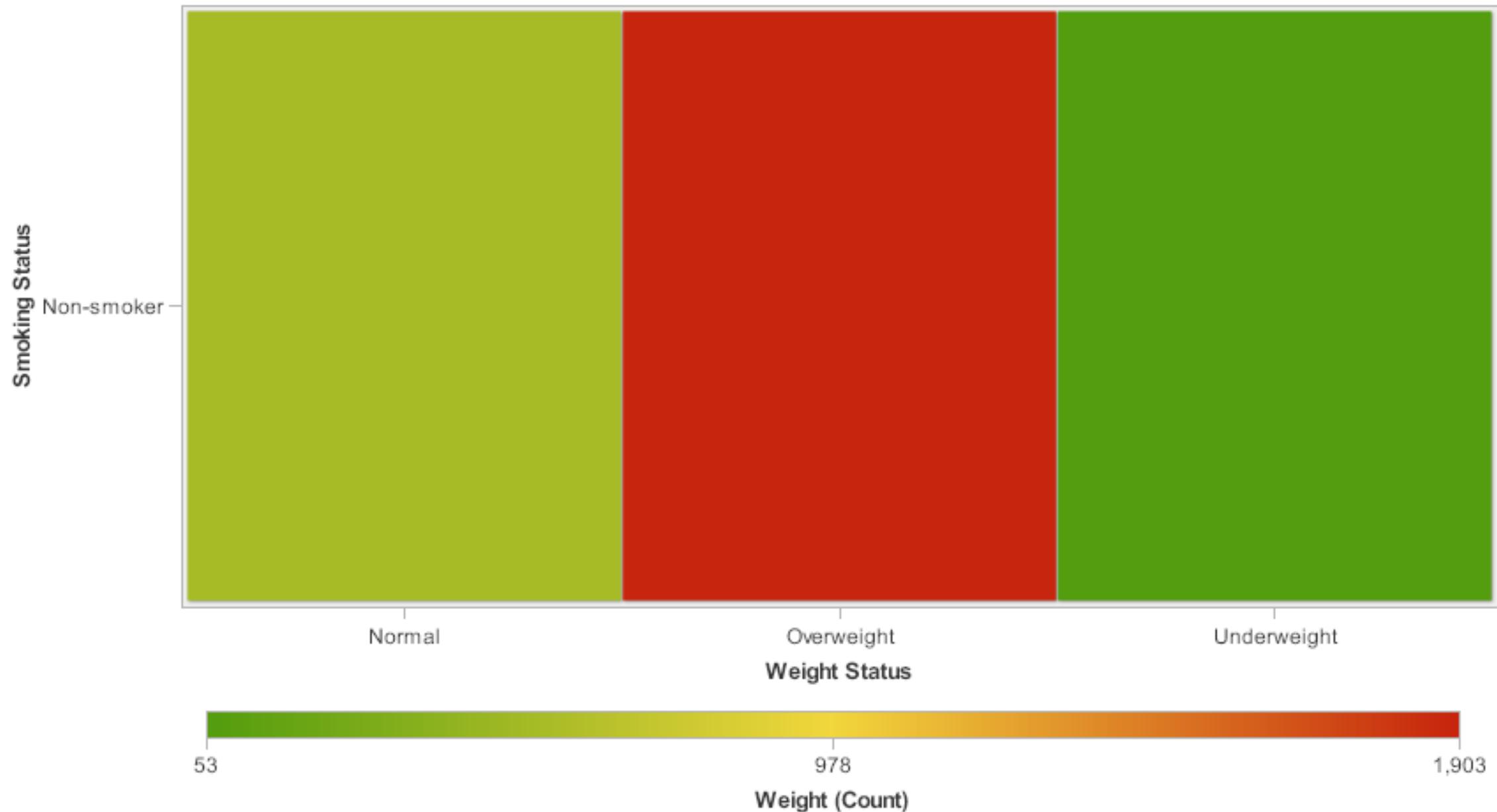


Filters: Smoking Status NotIn (Light (1-5), Very Heavy (> 25...)) AND Smoking Status NotMissing

Ranks: None

H5: We can see that the heavy smokers die early compared to non-smokers and moderate, but we should focus at the age group presented. Heavy and moderate one have a relation since the start and death date are in proportion, same can be said for non-smokers. Hence, this hypothesis is false.

Weight by Weight Status and Smoking Status



Filters: "Smoking Status NotIn (Heavy(16-25), Light(1-5)...)" AND "Smoking Status NotMissing" AND "Weight Status NotIn ()" AND "Weight Status NotMissing"

Ranks: None

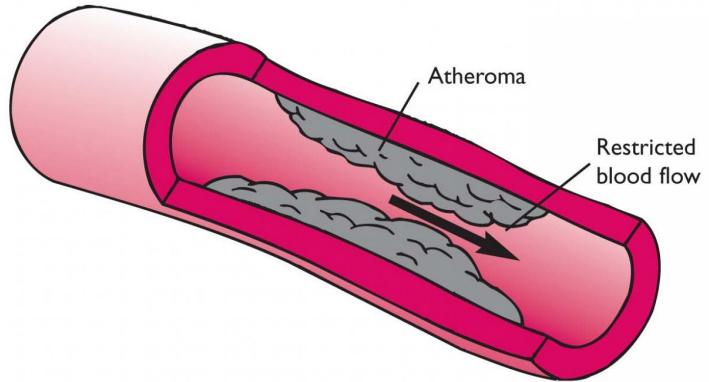
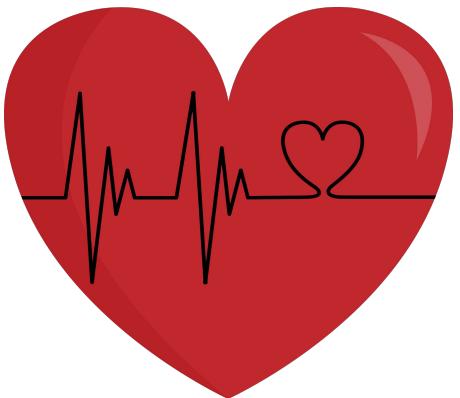
H6: With the weight count presented we can see that non-smokers have the highest count in the overweight section, hence the hypothesis is true.



Filters: None

Ranks: None

H7: This hypothesis is false. With the scatter plot we can see that the height and weight correlation in men is more than the one in female.



What are the causes of coronary heart disease?

Coronary heart disease refers to a narrowing of the coronary arteries - the blood vessels that supply oxygen and blood to the heart. It is also known as coronary artery disease. It is a major cause of illness and death.

Research suggests that coronary heart disease (CHD) starts when certain factors damage the inner layers of the coronary arteries. These factors include:

- Smoking
- High levels of certain fats and cholesterol in the blood
- High blood pressure
- High levels of sugar in the blood due to insulin resistance or diabetes
- Blood vessel inflammation

How Can Coronary Heart Disease Treated?

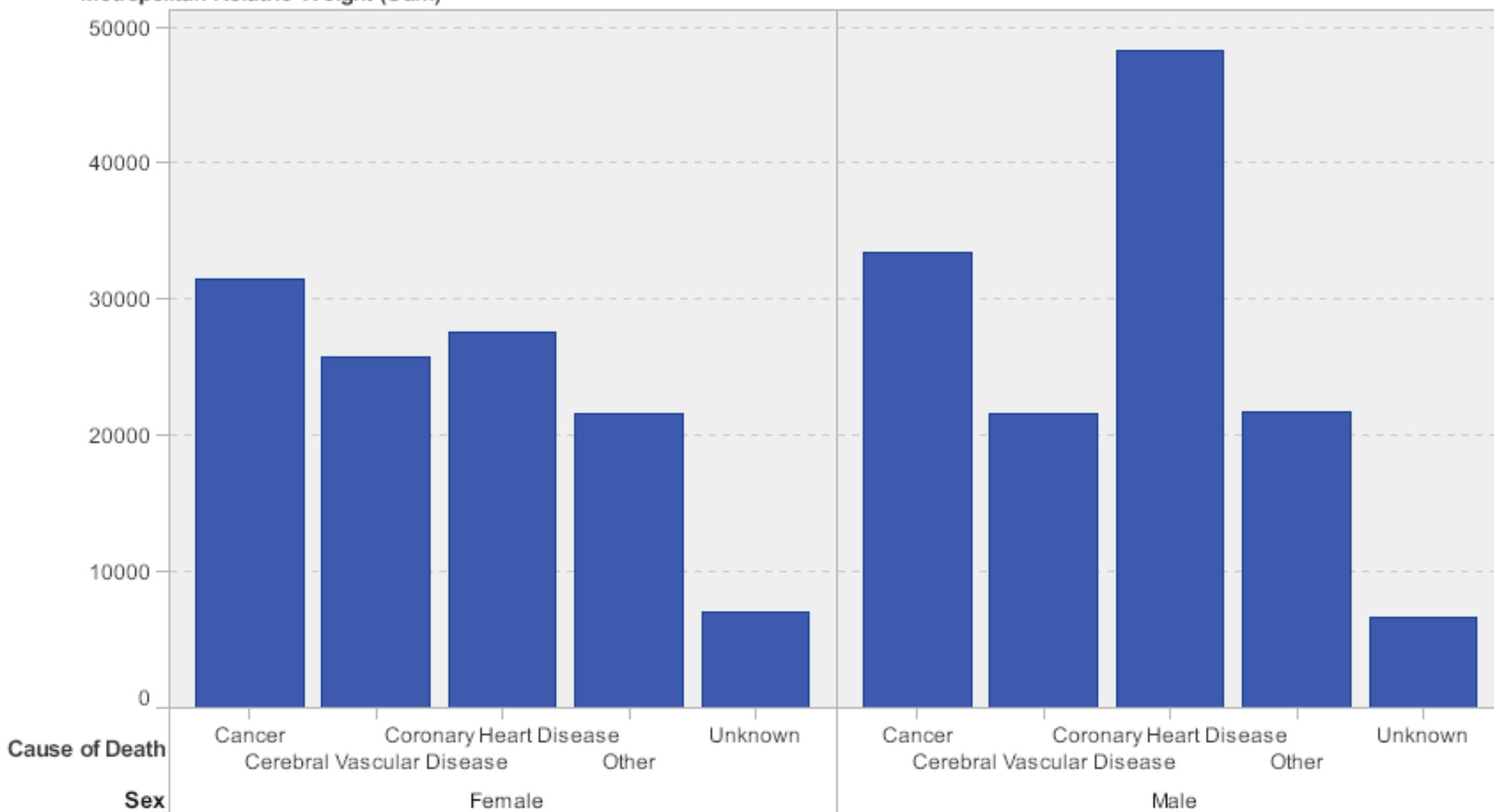
Treatments for coronary heart disease include heart-healthy lifestyle changes, medicines, medical procedures and surgery, and cardiac rehabilitation. Treatment goals may include:

- Lowering the risk of blood clots forming (blood clots can cause a heart attack)
- Preventing complications of coronary heart disease
- Reducing risk factors in an effort to slow, stop, or reverse the buildup of plaque
- Relieving symptoms
- Widening or bypassing clogged arteries

The visuals presented from this point on would discuss some of the distinct characteristics for people who suffered from coronary heart disease.

Metropolitan Relative Weight by Cause of Death

Metropolitan Relative Weight (Sum)



Filters: Cause of Death NotIn () AND Cause of Death NotMissing

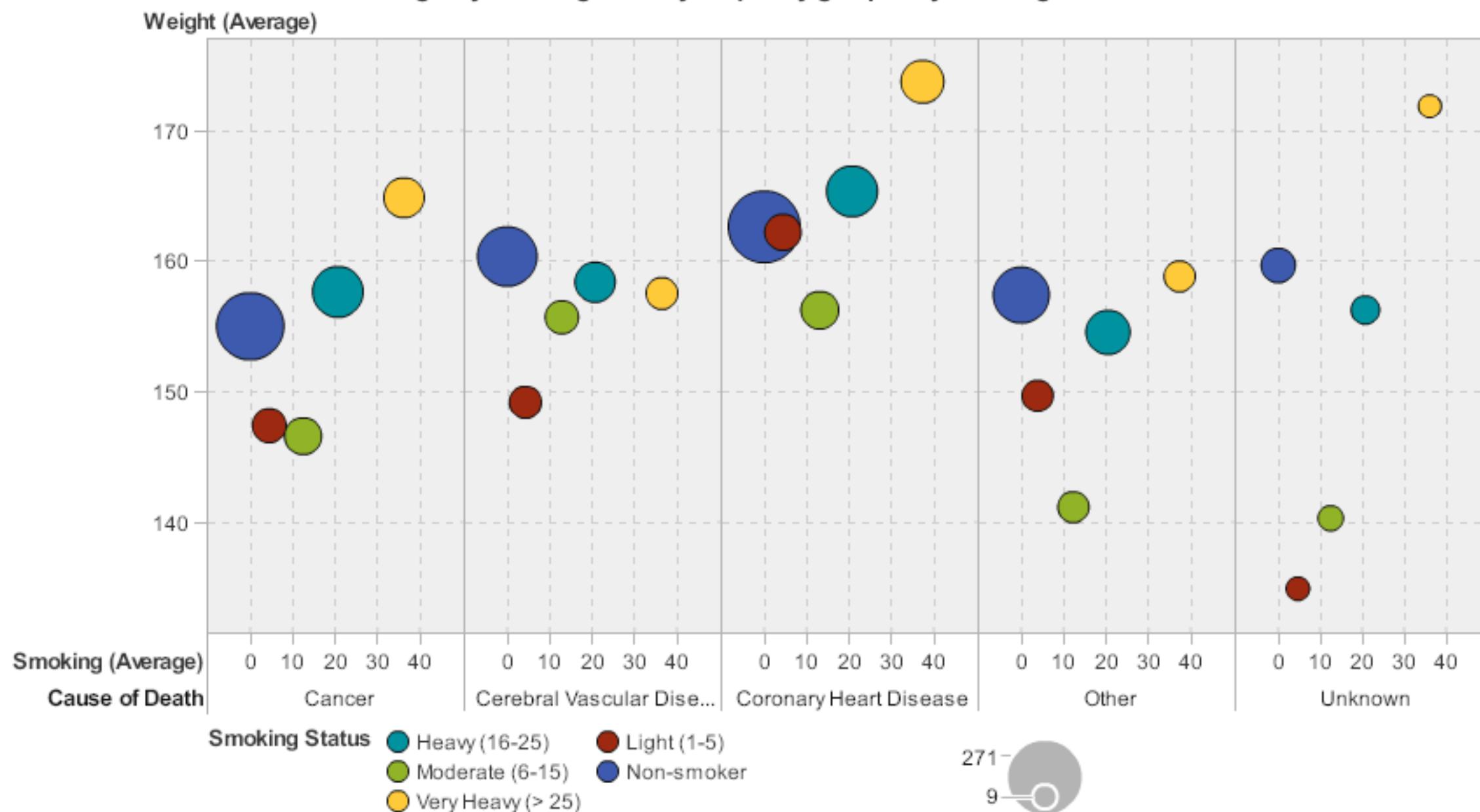
Ranks: None

Metropolitan Relative Weight and Body Mass Index (BMI) are commonly used as measures of body fatness in epidemiologic and clinical studies.

We can see from the visual that we have created using the given data, that men lead in the category having a higher level of CHD because of the higher MRW level. There could be many factors that played a role in this and most of it comes down to being overweight which could later lead to obesity. Using the same data for the hypothesis performed before we can confirm that this is in-fact correct when it comes to male being more overweight than female.

Female in general don't seem to have that characteristic when it comes to CHD as compared to men, they have lower levels of MRW in general, but it can be seen that they are in par with other diseases with male and have a much higher chances of getting cerebral vascular diseases.

Weight by Smoking sized by frequency grouped by Smoking Status



271
9

Filters: "Cause of Death NotIn () AND Cause of Death NotMissing" AND "Smoking Status NotIn () AND Smoking Status NotMissing"

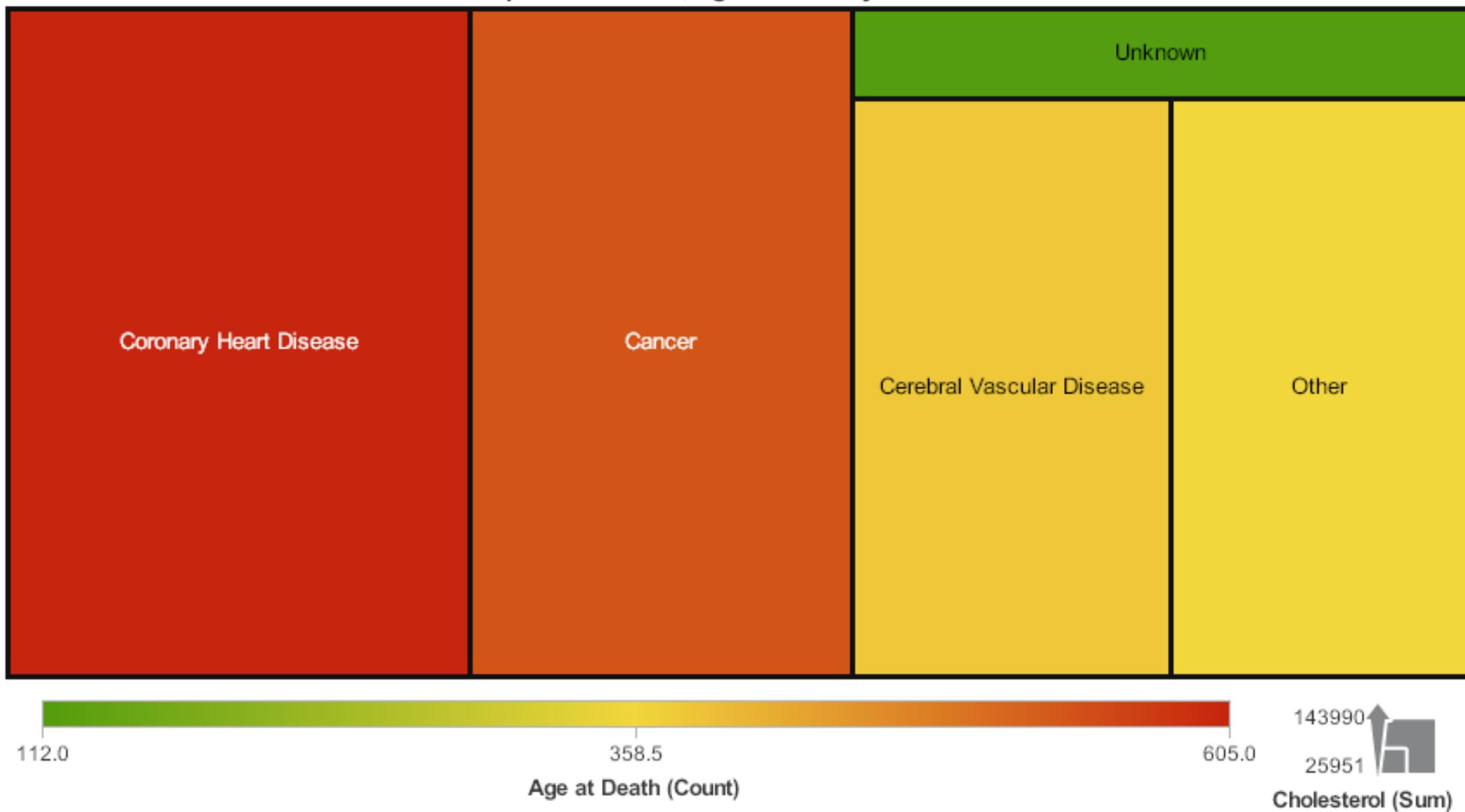
Ranks: None

The visual presented here gives us a strong relationship between the weight and the smoking habit someone with CHD has. The very heavy smokers tend to have high weight and lead in the CHD category. They also tend to be in a larger number when compared to other disease. Mostly the ones with more weight have a higher chance and when added with heavy smoking, leads into the formation of CHD as mentioned in our opening statement.

But its not just the heavy smokers, we can see that non-smokers with CHD are more in number when compared to others diseases. They also tend to have heavy weight.

This gives us an idea as to how weight and smoking plays major role in CHD, even non-smokers cannot be sure when it could happen to them.

Treemap of Cholesterol, Age at Death by Cause of Death

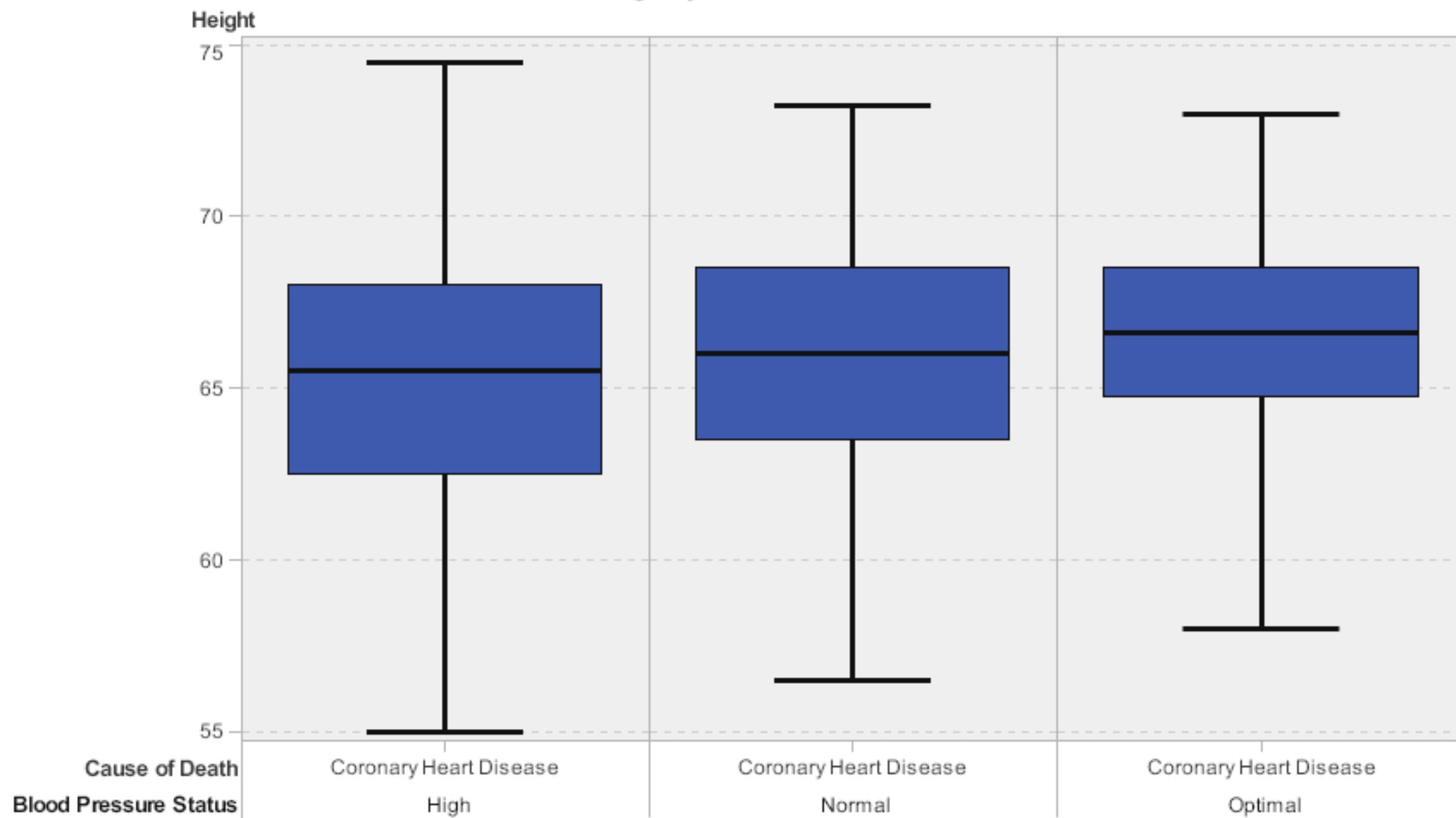


Filters: Cause of Death NotIn () AND Cause of Death NotMissing

Ranks: None

Here we can see that cholesterol plays a important role in the number of deaths that it causes. CHD seems to have the highest amount of deaths. Having high level of cholesterol creates a waxy, fat-like substance at the veins for the heart. And as mentioned in the start of this something like this a leading issue for CHD. so, we can say that people with it have high levels of cholesterol which if not treated on time could be fatal with other diseases.

Height by Cause of Death



Filters: Cause of Death NotIn (Cancer, Cerebral Vascular Disease...) AND Cause of Death NotMissing

Ranks: None

Someone's height and blood pressure plays and important role and go hand to hand. As the height of the person changes so does the blood pressure in the person. With these changes we find that these measures help in finding elevated BP and diseases in people. What we get from the visual presented here is the tallest person with CHD seems to have optimal blood pressure, where as the shortest person with CHD seems to have the highest blood pressure. Hence we can conclude that different heights with different BP, is one possibility to get CHD.