



99 problems,
but a heart ain't one

Princess Otusanya
Patrick Kim

HEART OF THE MATTER: CARDIOVASCULAR DISEASE

EVERY YEAR...

1 IN 4 DEATHS
ARE CAUSED BY HEART DISEASE

17.3M
2015

23.6M
2030

SINCE 2010 THE FDA HAS

APPROVED NEARLY
30 DRUGS INDICATED TO TREAT
CARDIOVASCULAR DISEASES

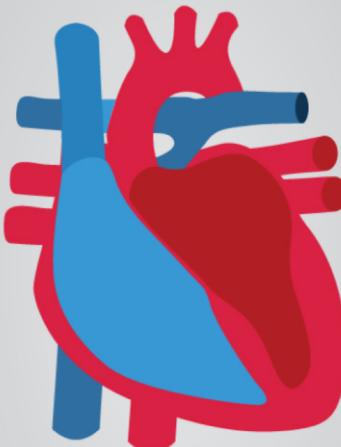
Reference: <https://www.centralsight.com/drug-information/fda-approved-drugs/the-specific-area/cardiology-vascular-diseases>

THERE ARE ABOUT



400 OPEN TRIALS
IN ACUTE CORONARY
SYNDROME REGISTERED
AT CLINICALTRIALS.GOV

CARDIOVASCULAR DISEASES ARE THE
LEADING GLOBAL CAUSE OF DEATH



WORLDWIDE CLINICAL TRIALS
SCIENTIFICALLY MINDED • MEDICALLY DRIVEN

Worldwide Clinical Trials has provided the operational infrastructure across large CV outcome studies at more than 7,000 sites with more than 140,000 patients.

[worldwide.com](http://www.worldwideclinicaltrials.com)

HEART DISEASE IN THE U.S.

HEART DISEASE IS THE
LEADING CAUSE OF DEATH
FOR MEN AND WOMEN IN THE UNITED STATES.



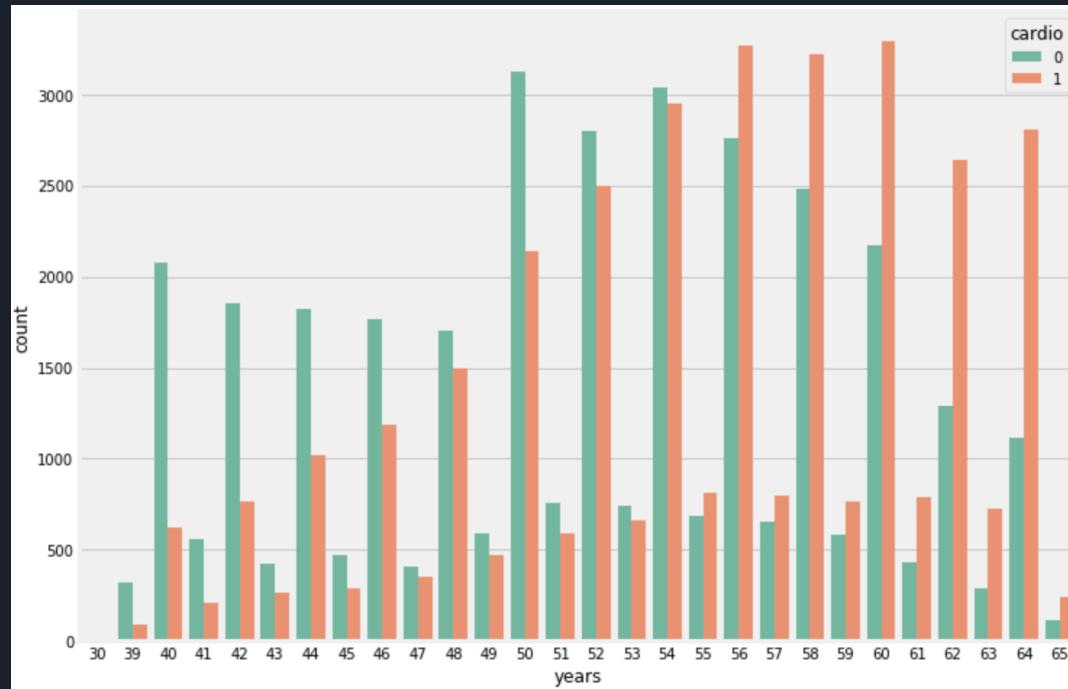
SOMEONE IN THE U.S. DIES
FROM HEART DISEASE ABOUT
ONCE EVERY 84 SECONDS.

NEARLY 801,000 PEOPLE
IN THE U.S. DIED FROM HEART
DISEASE, STROKE AND OTHER
CARDIOVASCULAR DISEASES
IN 2013. THAT'S ABOUT
ONE OF EVERY THREE DEATHS.

DIRECT AND INDIRECT COSTS
OF CARDIOVASCULAR DISEASES
AND STROKE TOTAL MORE
THAN \$316.6 BILLION.
THAT INCLUDES HEALTH
EXPENDITURES AND LOST
PRODUCTIVITY.

Reference: http://res.americanheart.org/pdr/groups/lnahm-public@sc-myrs@scmp/documents/downloadable/lcm_480086.pdf

Exploratory Data Analysis





Key Questions

1. Do people with cardiovascular disease have a higher Body Mass Index (BMI) than people without cardiovascular disease?
2. Given high blood pressure, do males have an equal chance of getting cardiovascular disease as females?
3. Does the proportion of people with high cholesterol levels equal to the proportion of people who have normal cholesterol levels?

BMI

H_0 : People with cardiovascular disease have the same BMI as the people without the disease.

H_1 : People with cardiovascular disease have higher BMI than the people without the disease.



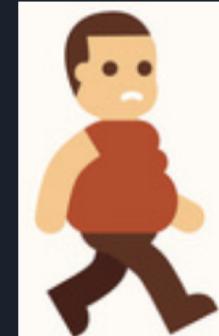
26.81

average BMI for people without
cardiovascular disease

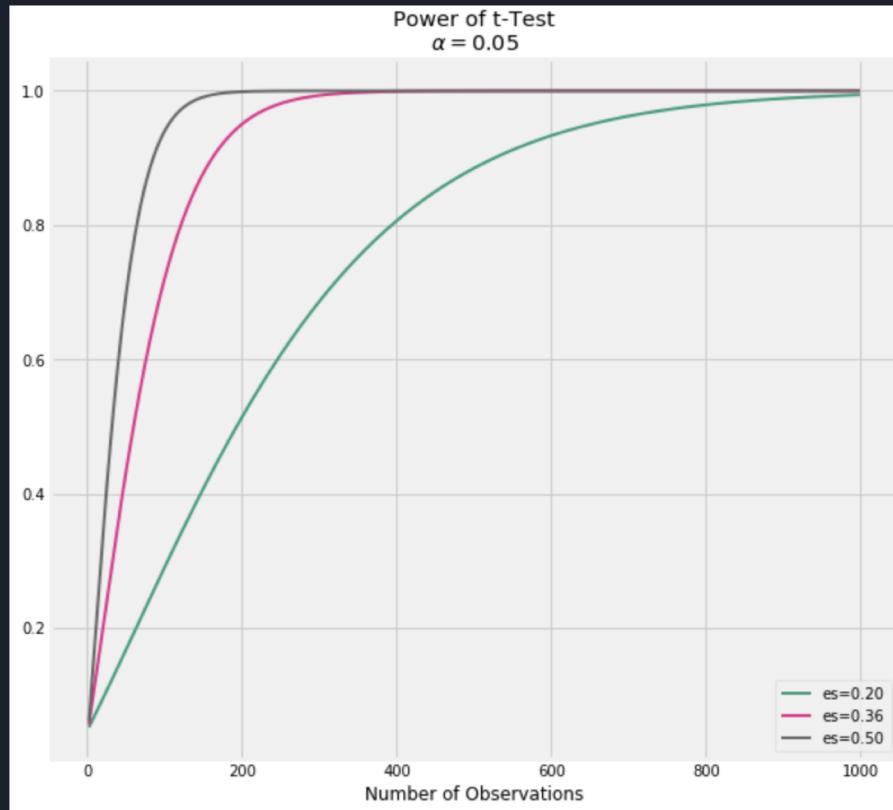
T-stat: 45.928
P-val: 0.000
Effect Size: 0.362
Power: 1.0

28.56

average BMI for people with
cardiovascular disease



BMI



Gender and Blood Pressure

H_0 : Males with high blood pressure are equally likely to be diagnosed with cardiovascular disease as women.

H_1 : There is a difference in proportion between males with high blood pressure and cardiovascular disease and the proportion of females with high blood pressure and cardiovascular disease.



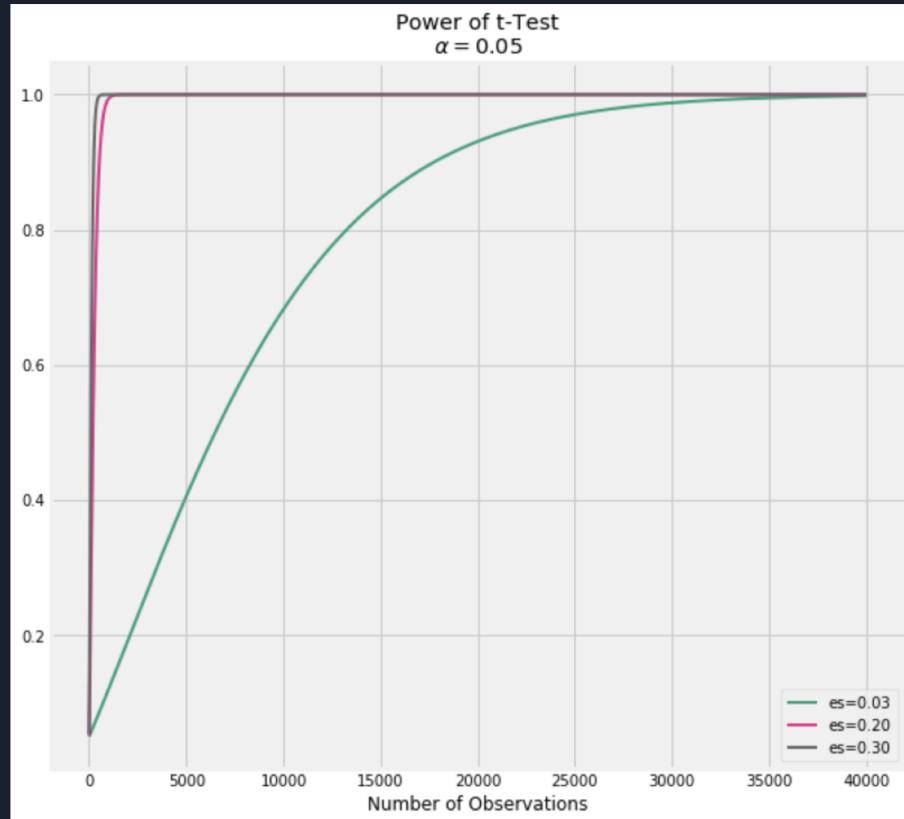
Z-stat: 4.203

P-val: 0.000026

Effect Size: 0.034

Power: 0.654

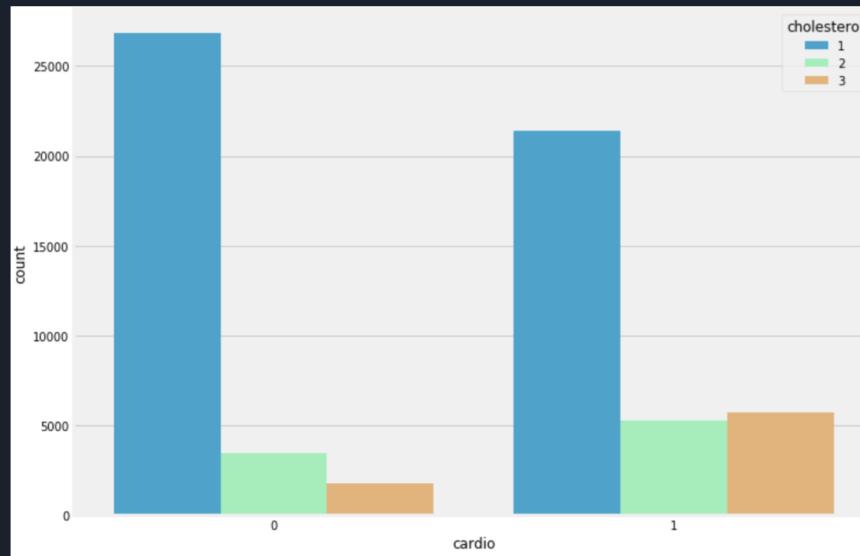
Gender and Blood Pressure



Cholesterol

H_0 : People with high levels of cholesterol are equally likely to be diagnosed with cardiovascular disease as people with normal levels of cholesterol.

H_1 : People with high levels of cholesterol are more likely to be diagnosed with cardiovascular disease as people with normal levels of cholesterol.



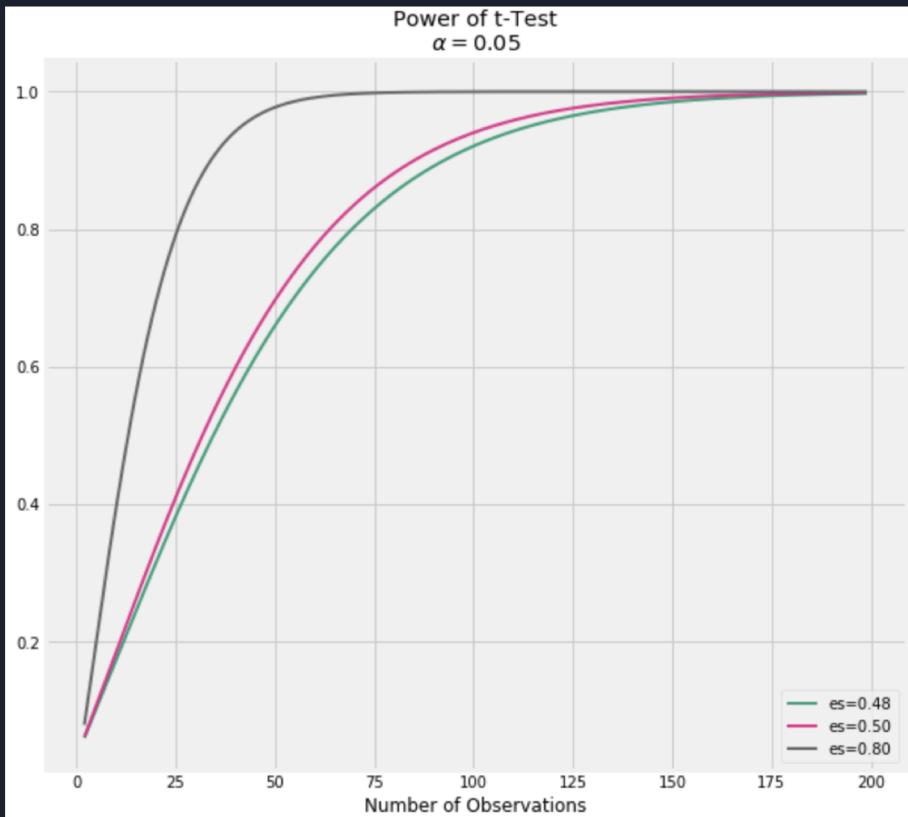
Z-stat: 51.822

P-val: 0.000

Effect Size: 0.479

Power: 1.0

Cholesterol



Conclusions

- Advising patients to lower BMI through a healthy lifestyle (diet and exercise) is highly encouraged to lower your chances of getting cardiovascular disease.
- There is a difference in proportions between males with high blood pressure and cardiovascular disease and females with high blood pressure and cardiovascular disease.
- High cholesterol levels increase your chances of getting cardiovascular disease. Again through diet and exercise, this may help lower levels.

