

DATA VISUALIZATION IN R

Case Study: COVID-19 in South Korea



GROUP 25

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WHAT PLAYS INTO THE VIRUS'S HANDS?



Female

At the 20s

Province: Gyeonggi-do
(Population: 13,238 Mio)



Male

At the 70s

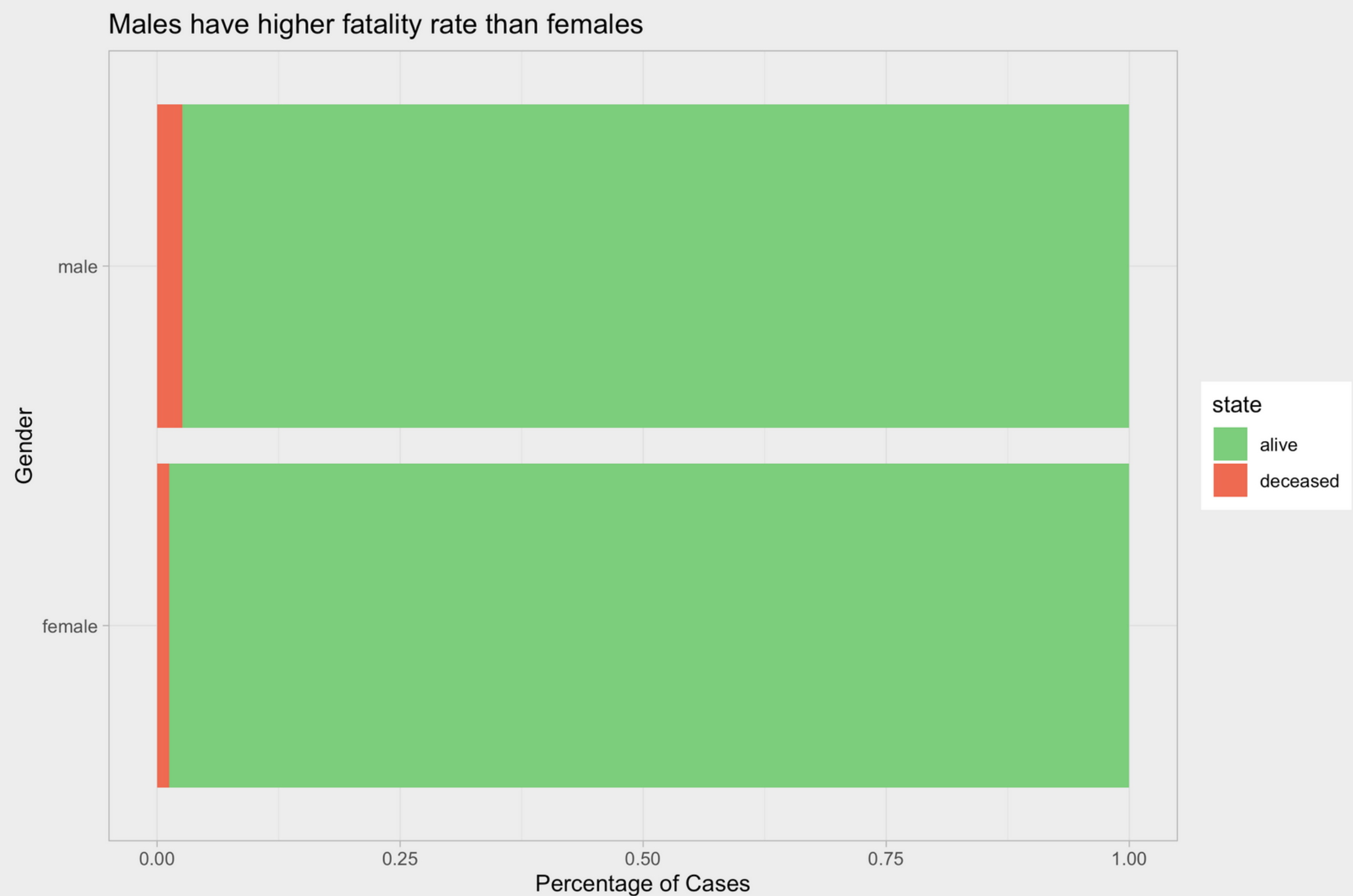
Province: Daegu
(Population: 2,432 Mio)

WHAT PLAYS INTO THE VIRUS'S HANDS?



- ➔ If I am a man does it mean I have higher chances to die?
- ➔ If I live in a province with a bigger population does it mean I have higher chances to get the virus because my province would have more confirmed cases?
- ➔ If I am young does it mean I will get better sooner, than somebody who is old?

CLAIM 1: MALES HAVE A HIGHER FATALITY RATE THAN FEMALES



sex \ state	alive	deceased
female	2190	28
male	1778	47

Fisher's Exact Test
(two-sided):

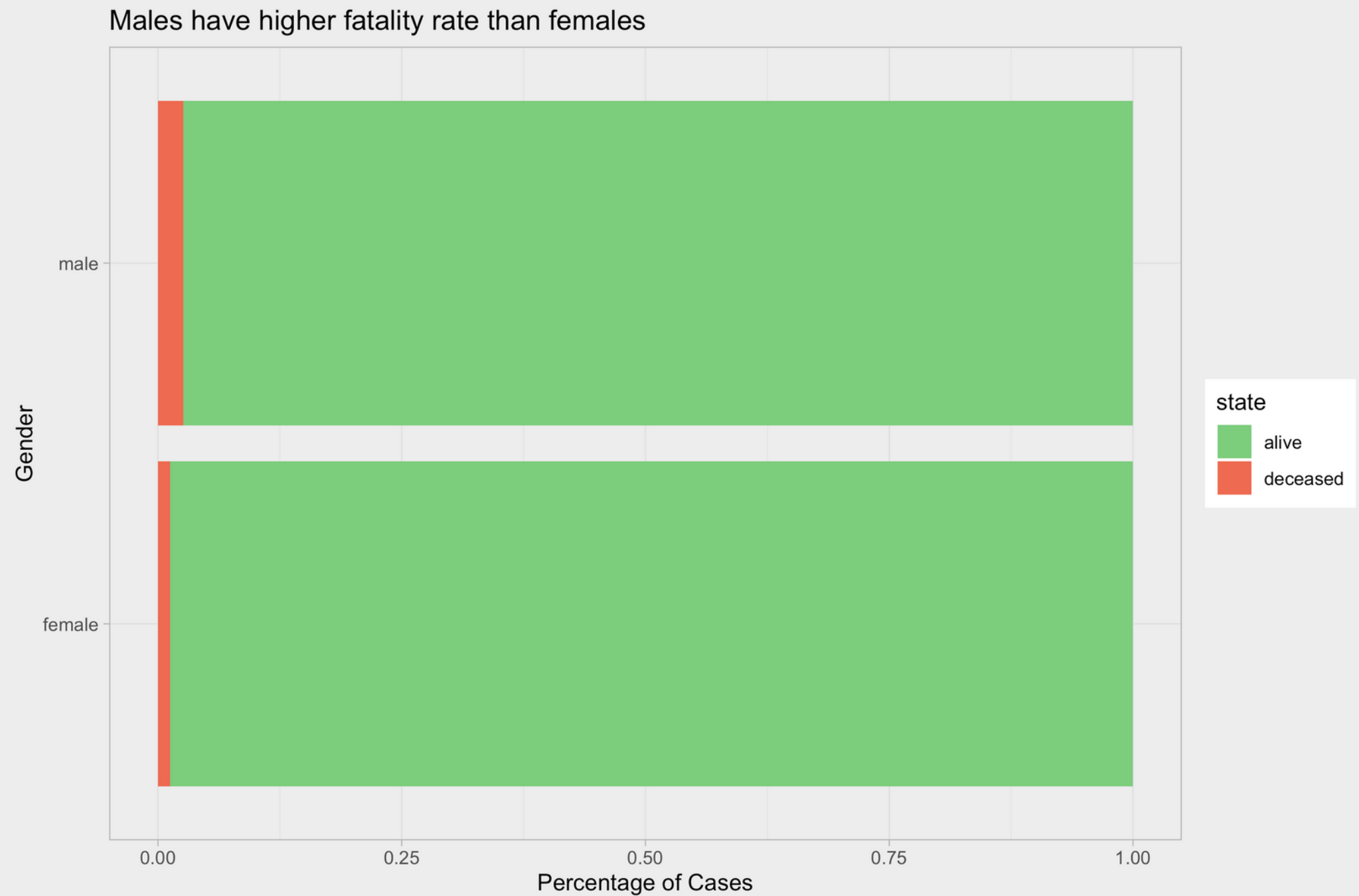
H_0: Gender is not related with
state of patient

p-value= 0.002248

To binarize "state":
Released + isolated = alive



CLAIM 1: MALES HAVE A HIGHER FATALITY RATE THAN FEMALES



Further reasons for the results?

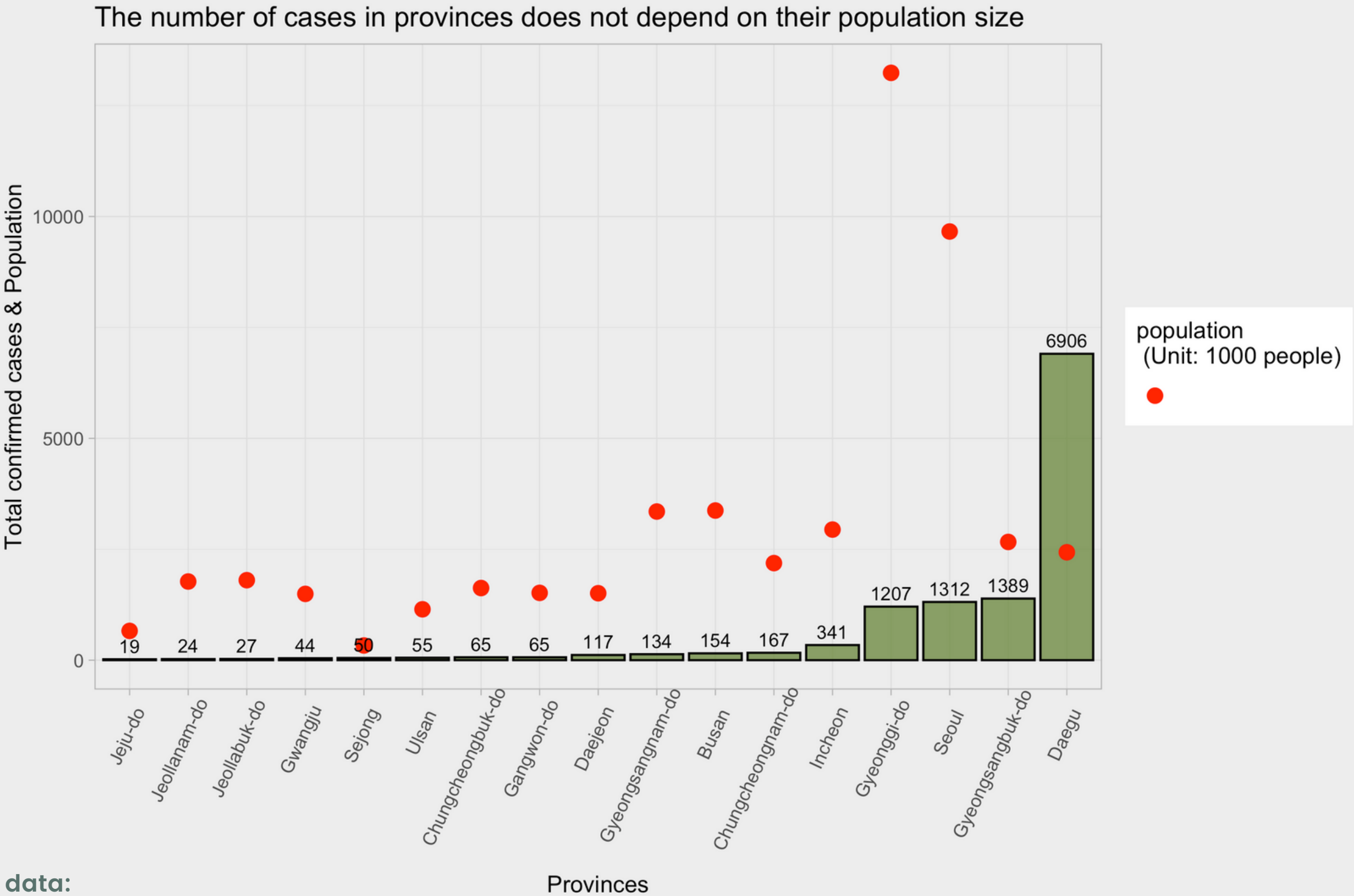
- Age distribution
- Former deceases
- Health awareness as a risk factor
- Smoking as a risk factor

https://www.focus.de/gesundheit/news/hoehere-sterberate-warum-sind-maenner-dem-coronavirus-staerker-ausgeliefert-drei-erklaerungsansaeetze_id_11848525.html



*According to Global Health 50/50, worldwide men die more from COVID than women.
source: <https://globalhealth5050.org/the-sex-gender-and-covid-19-project/the-data-tracker/?explore=variable&variable=Deaths>

CLAIM 2: THE NUMBER OF CASES IN PROVINCES DOES NOT DEPEND ON THEIR POPULATION SIZE



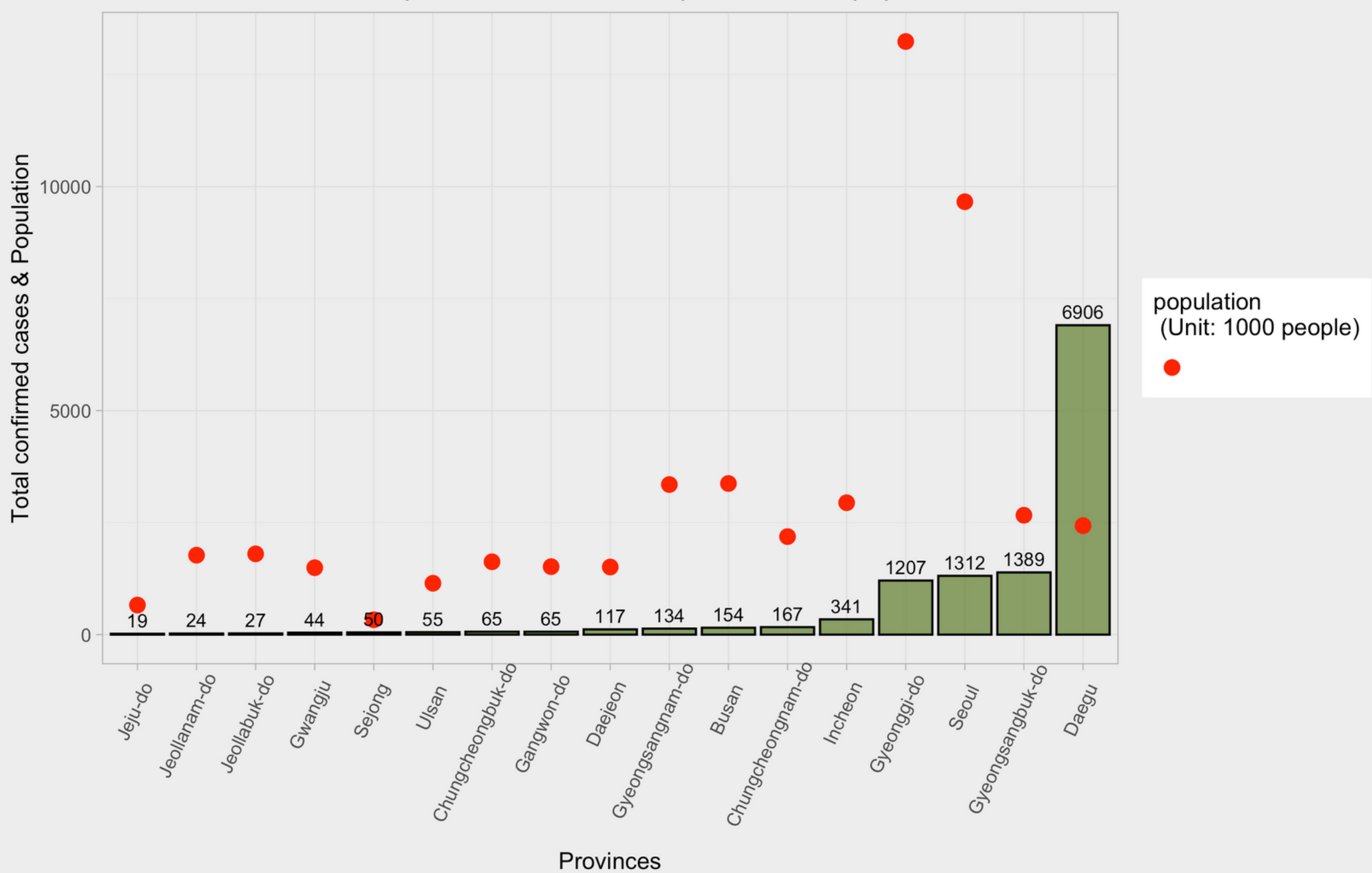
*Source of the population data:

http://index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=1007#quick_01



CLAIM 2: THE NUMBER OF CASES IN PROVINCES DOES NOT DEPEND ON THEIR POPULATION SIZE

The number of cases in provinces does not depend on their population size



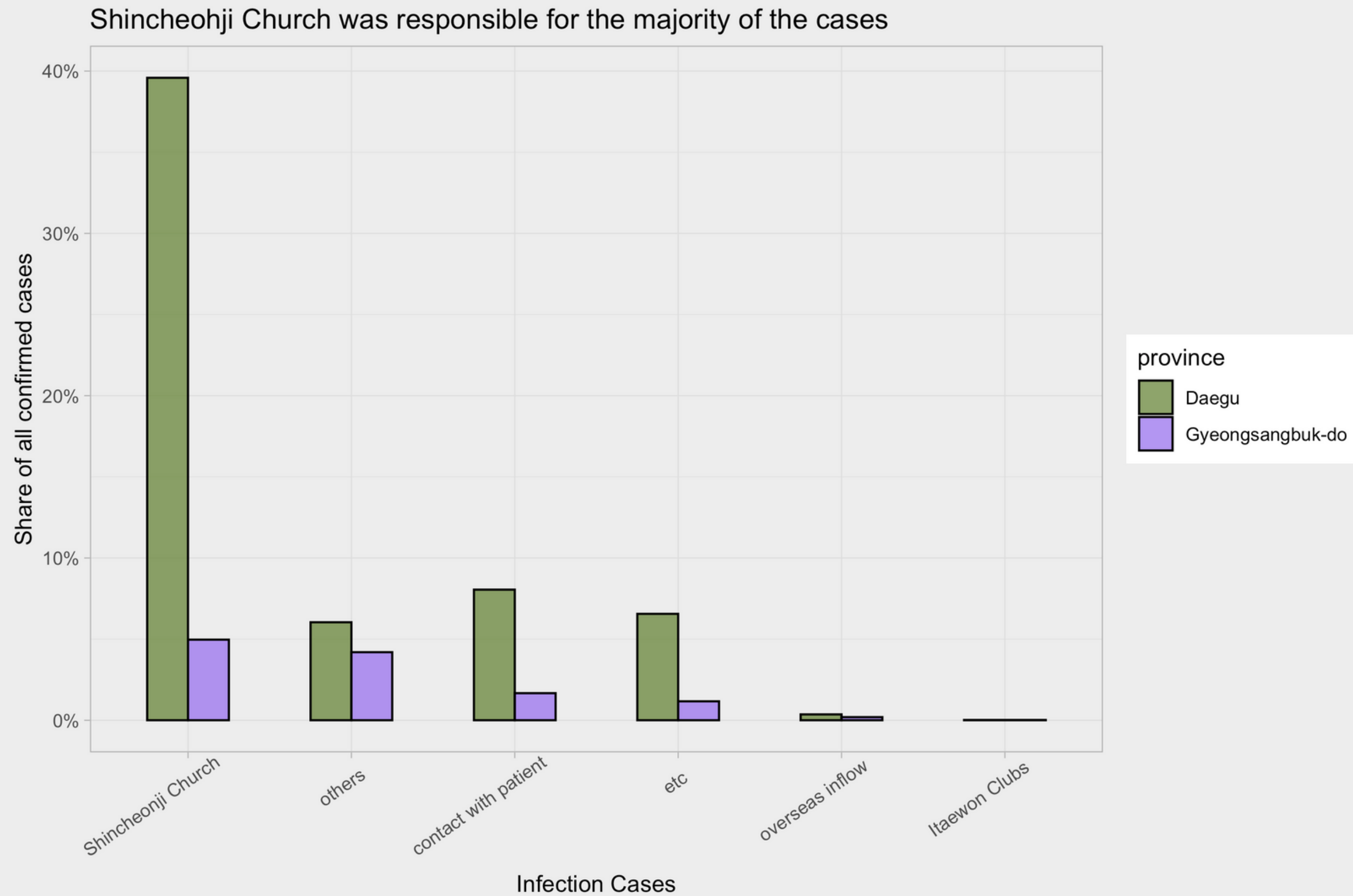
Further reasons for the results?

- Infection Case Path
- Cities' density
- Elderly Population Ratio

<https://theconversation.com/5-reasons-the-coronavirus-hit-italy-so-hard-134636>

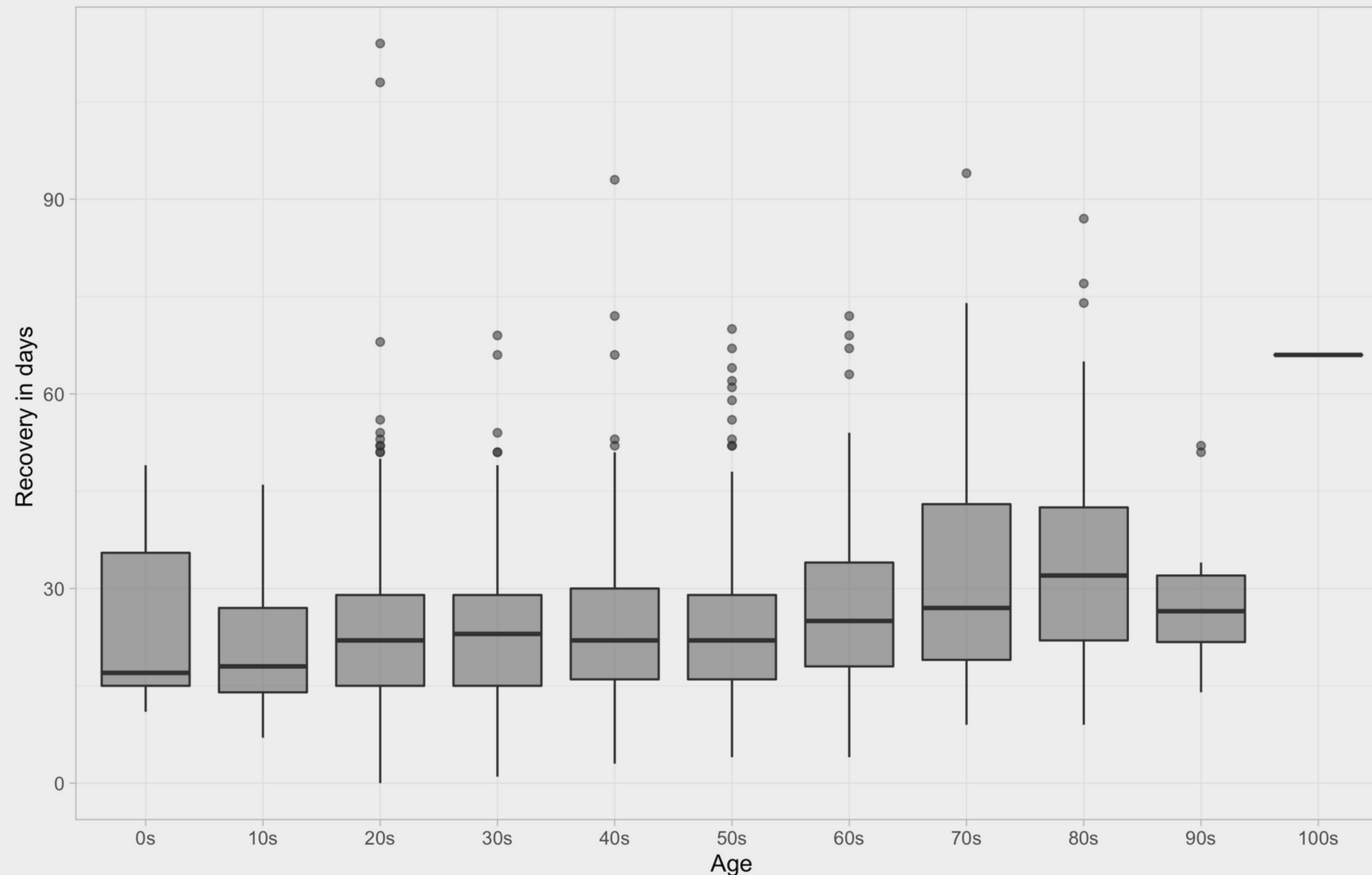


EFFECT OF A THIRD VARIABLE: INFECTION CASE PATH



CLAIM 3: THE HIGHER THE RELEASED PATIENT'S AGE, THE MORE RECOVERY DAYS THEY NEEDED.

The higher the patient's age, the more recovery days they needed



Pearson's product-moment correlation:

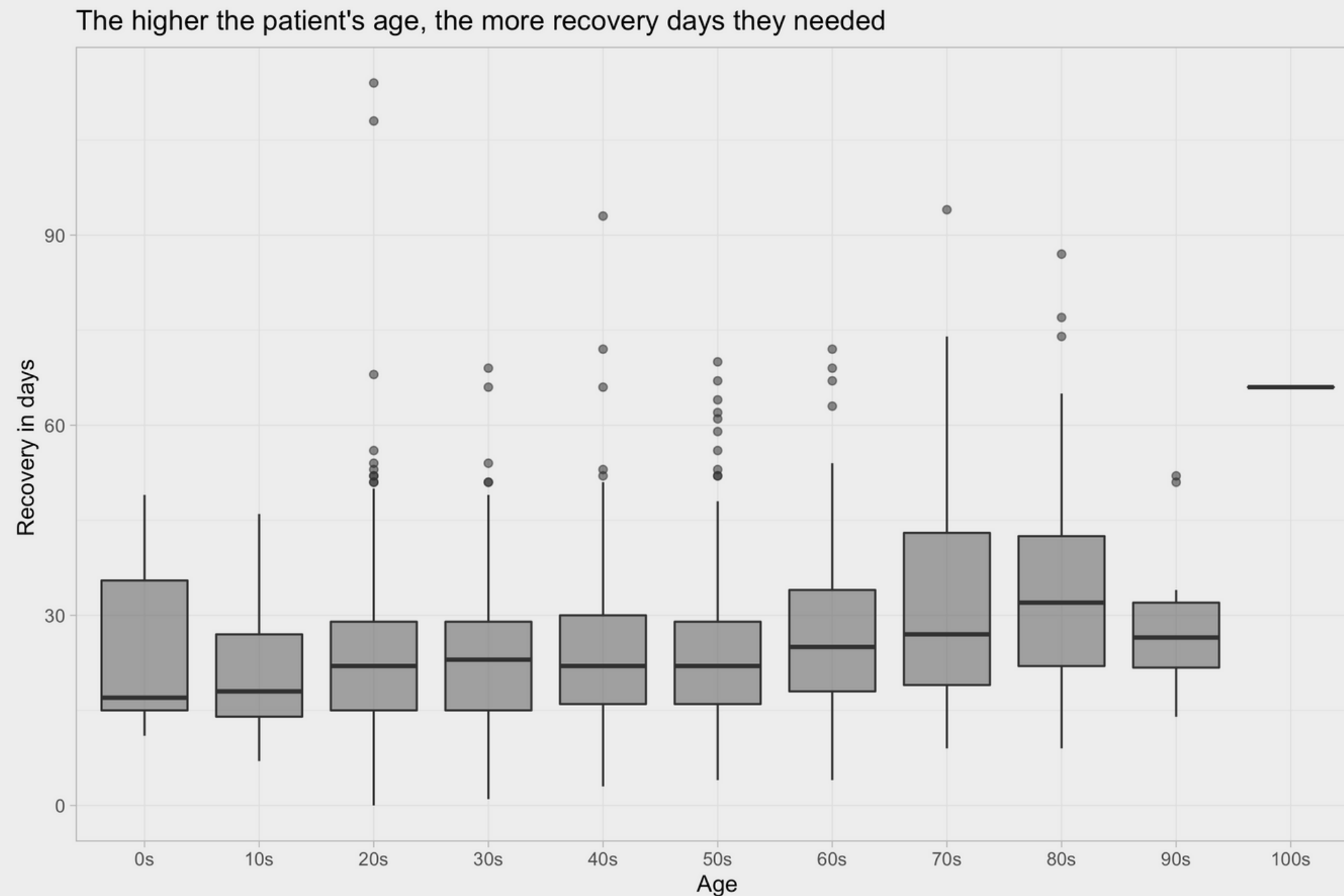
H₀: There is no correlation between age and number of days needed to recover

p-value= 2.024e-14

Correlation Coefficient: 0.1910513



CLAIM 3: THE HIGHER THE RELEASED PATIENT'S AGE, THE MORE RECOVERY DAYS THEY NEEDED.



Further reasons for the results?

- Former diseases
- Immune system condition
- Genetics



CONCLUSION

Findings:

- In South Korea men had a higher fatality ratio than women
- The number of Cases in provinces does not depend on their population size, it can be influenced by the infection case path, here: Shincheonji Church
- Elderly patient had on average longer recovery, than the young patients



THANK YOU FOR
YOUR ATTENTION!

