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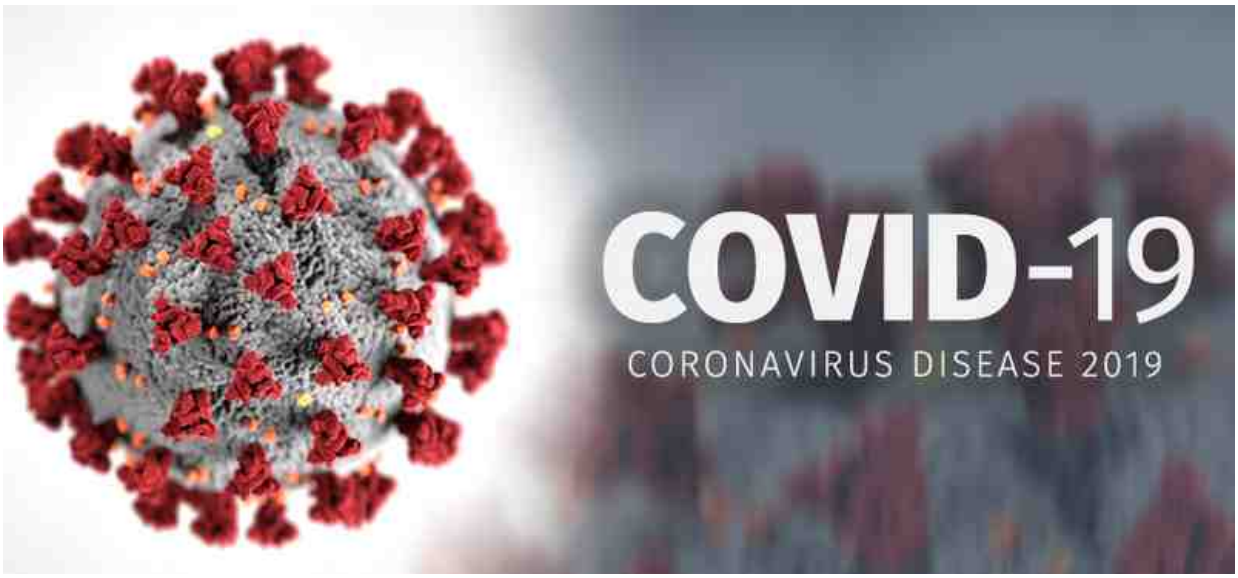
How Does COVID 19 Affect Different Age Groups and Genders? **(2020-05-11 23:17)**

How Does COVID 19 Affect Different Age Groups and Genders?



The entire world is shaken by the recent outbreak of coronavirus. and all countries have been significantly affected by the global pandemic. On May 9th the total number of Coronavirus cases breached four million affecting almost all countries. All countries have been affected differently in some countryâ??s like the USA impact due to COVID has been significant. So far, the USA reported 80,000 deaths whereas the death count crossed 5000 in Canada.

A fter the recent global pandemic, there were many news articles and blogs claiming that only old people are likely to die and young people are immune and some reports claiming young people also might die. Some blogs even claimed that males are more prone to die than females. There has been so much confusion around the effect of COVID 19 for different groups and gender. Using the data published in Statistics Canada, I was able to study and verify some facts and answer the following questions by analyzing data of 10,000 cases.

1. Is there a relationship between mortality rate and age? And does this vary with gender?

There have been numerous reports claiming that younger people are immune to COVID 19 and these people donâ??t need to panic . There has been so much confusion in this regard. This blog using Canadian data verifies this fact.

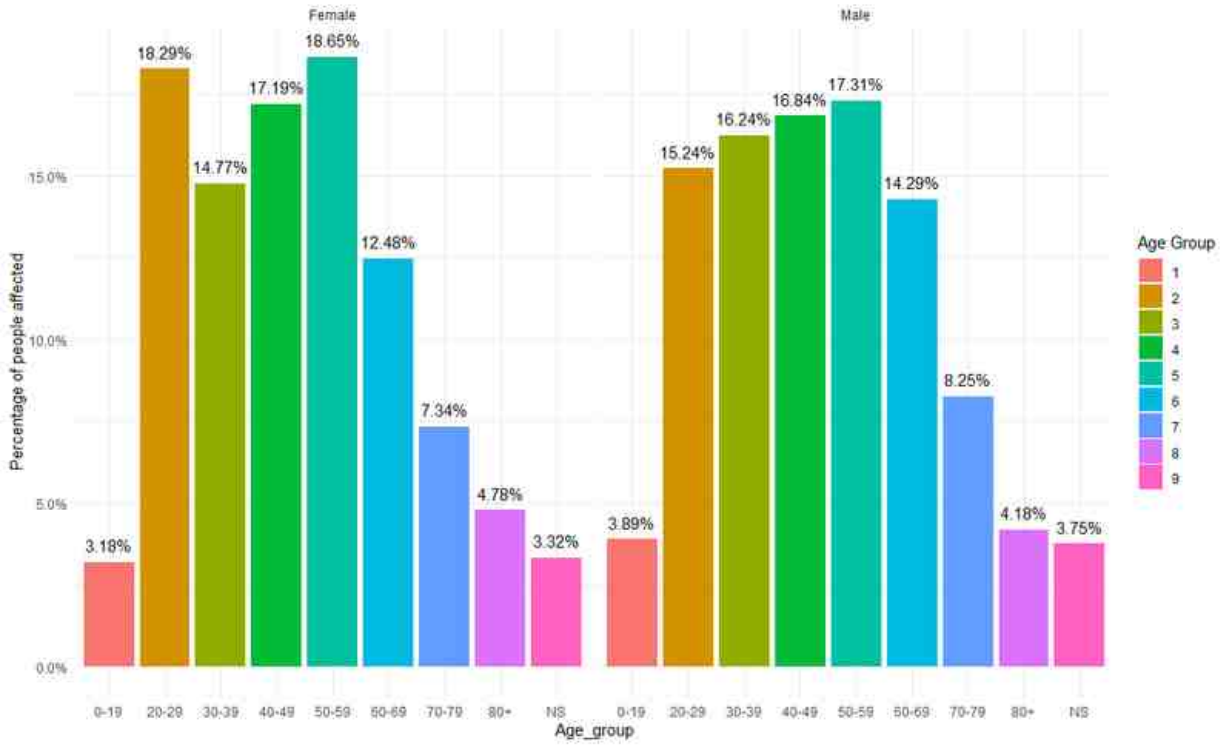
2. Does the relationship between mortality rate and age vary with the type of transmission?

This blog validates how different types of transmission impacted different age groups and which groups are infected most because of community spread. And whether old people are at risk because of the younger generation.

3. Which age group people needed medical attention the most?

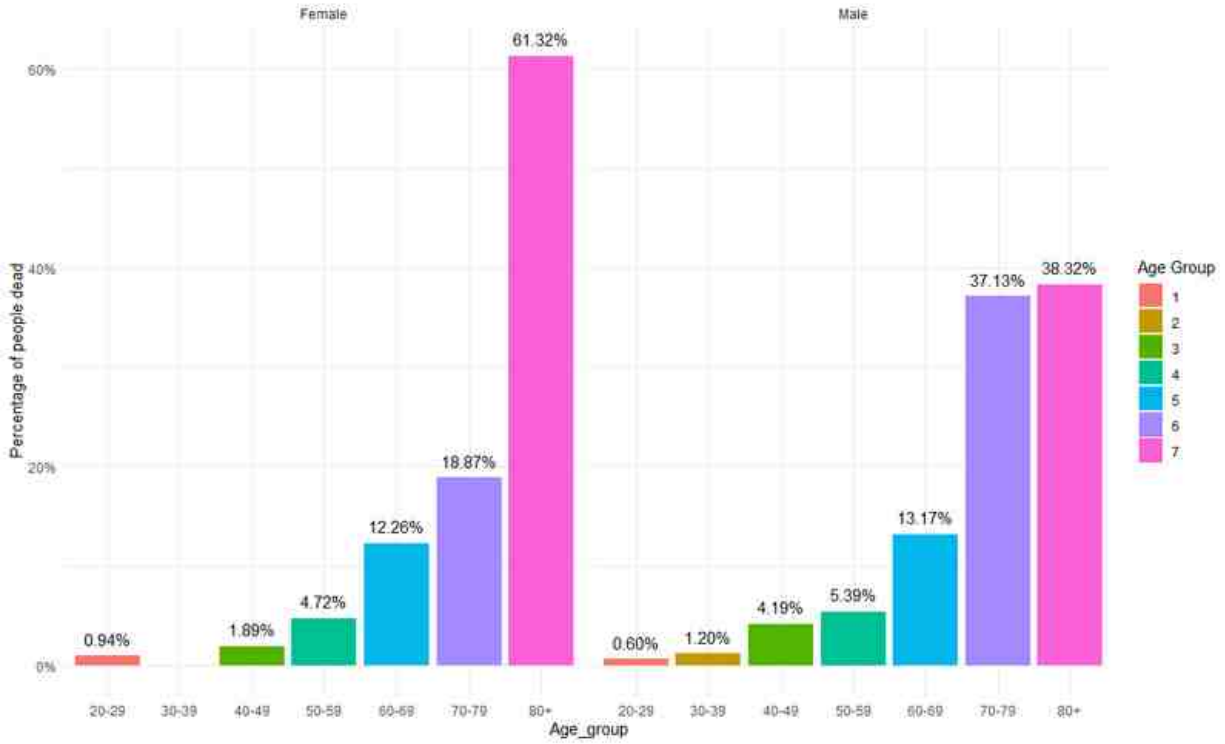
Some youtube videos claimed that even if young people got infected with coronavirus it will be cured without needing medical attention. So this blog using Canada data confirms whether the young generation needed medical attention or not.

How are different age groups and genders affected?



The percentage of people that got affected due to COVID 19 according to Age group and Gender

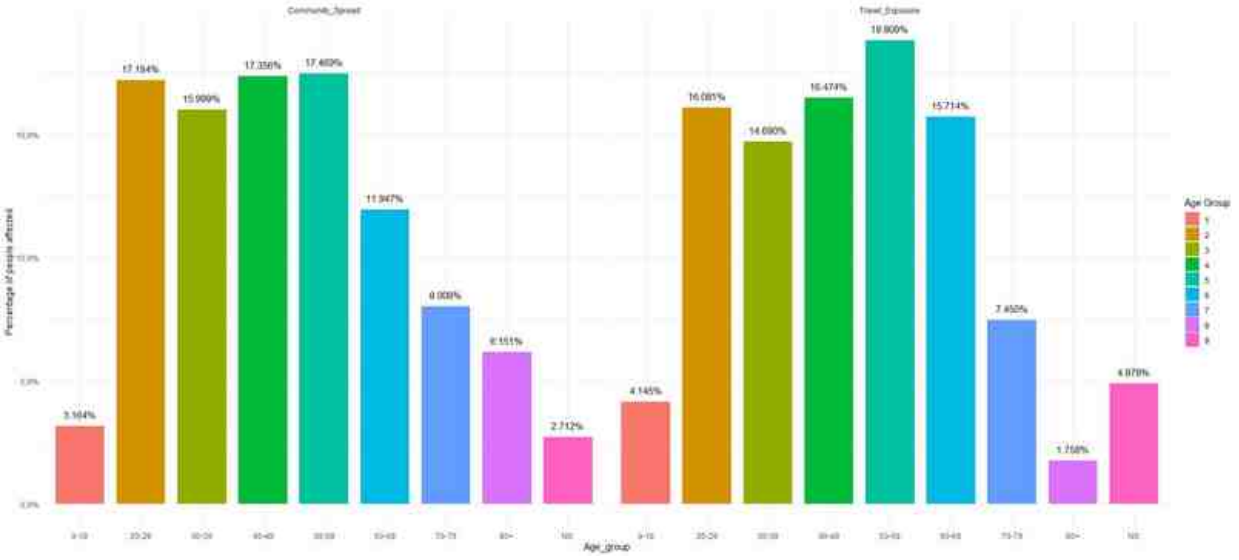
It can be seen that the infection rate due to COVID 19 is higher among the younger population. The infection rate is very minimal for people aged less than 20 years with just 3 % among both males and females. Population with age group ranging from 20 to 60 years accounted for almost 70 % of cases among males and 65 % of cases among females. The infection rate among the older population is 25 % and 30 % for males and females. The age group is not stated for 3 % of people. So what is the fatality rate for these infected populations?



Fatality Rate of people according to different Age groups and Gender

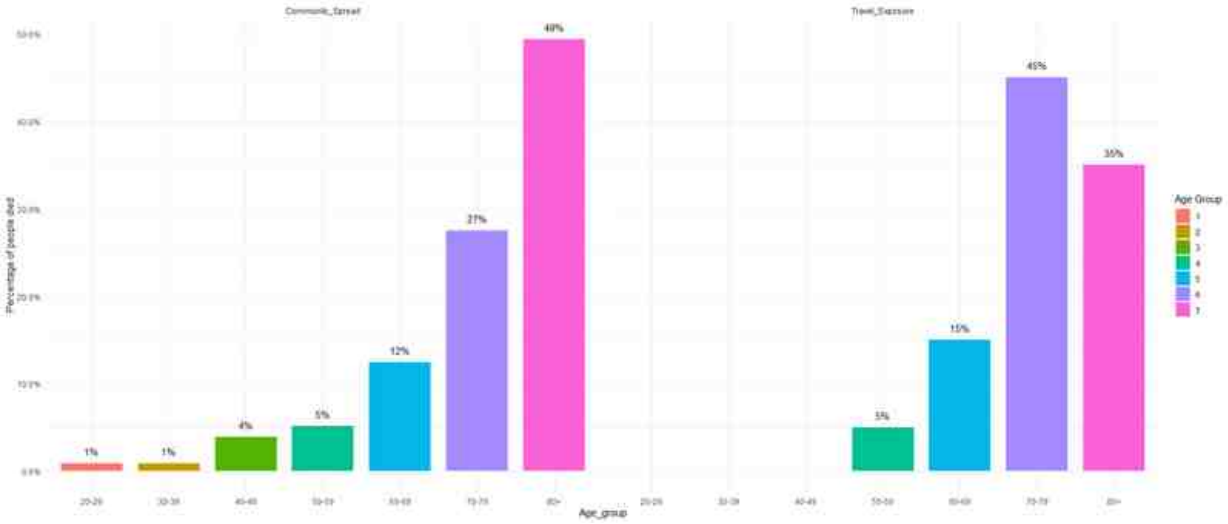
Even though, the infection rate is higher among younger adults the fatality rate is high among the older population with almost 80 % among both male and female populations. Surprisingly, the fatality rate is very high among the female aged 80+ years with 60 % when compared with a 40 % fatality rate of the male population. This infers that women population aged 80+ years are more prone to death. Even though, the infection rate accounted for 70 % among the population aged between 20 to 60 years the fatality rate is very low accounting for only 10 % deaths. There are no deaths reported in Canada for the population aged less than 20 years.

How are age groups affected due to different types of transmission?



The Percent of people affected due to different type of transmissions according to Age groups

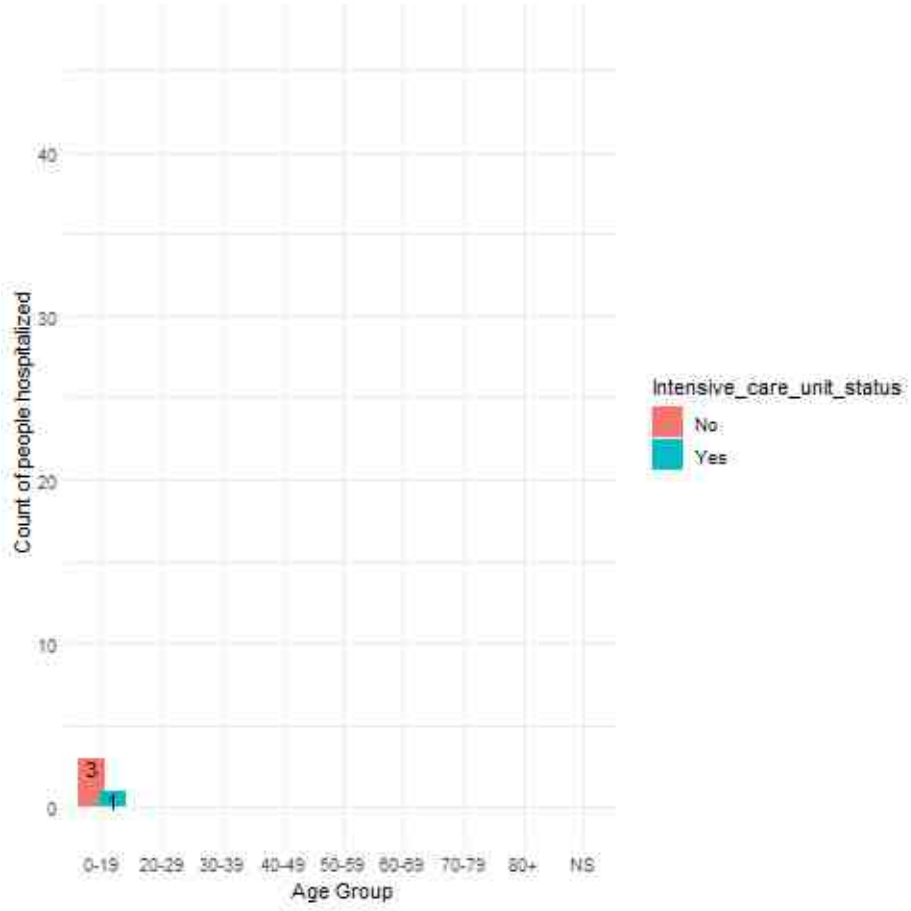
The percentage of people affected due to community spread and travel exposure are almost the same for all age group. Only for the people aged between 60â69 years more people are affected due to travel exposure when compared with the percent of cases due to community spread.



The fatality rate of people died due to different transmissions according to Age groups

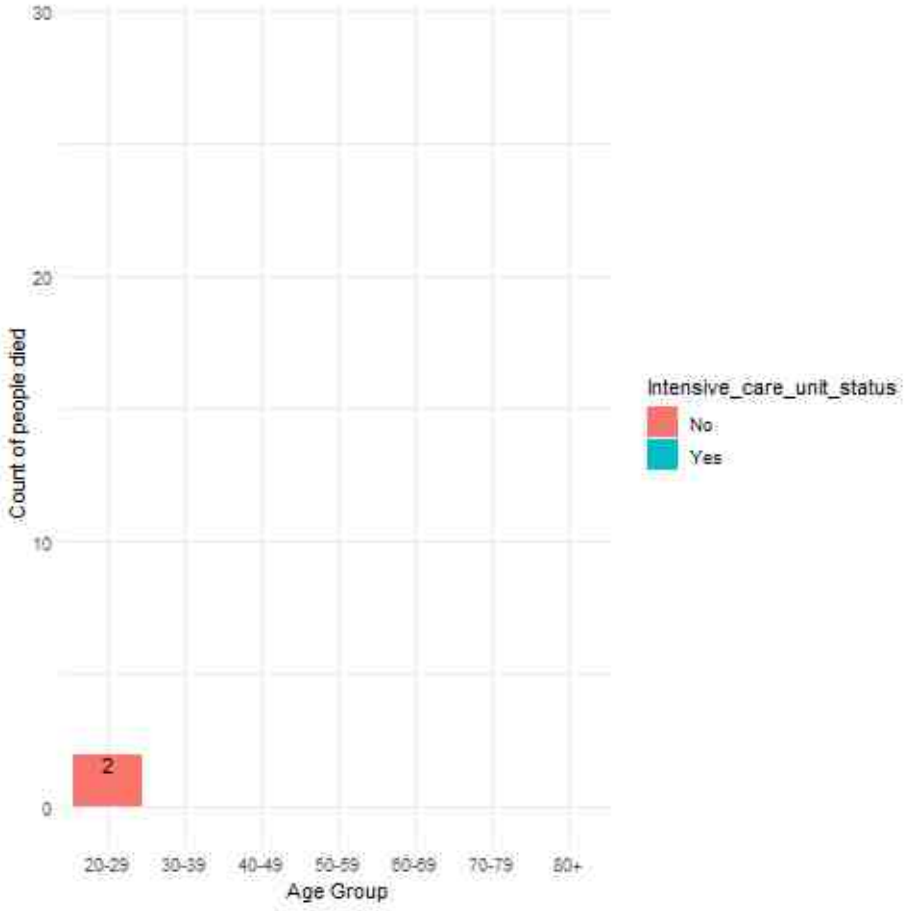
There are no deaths reported for the people aged less than 50 years for the people with travel history but 6 % of deaths are reported due to community spread. Almost 50 % of deaths are reported for the people aged 80+ because of community spread when compared with 35 % of deaths for the people with travel history. There are more deaths reported for the people aged between 70â79 years with travel history when compared with community spread.

Different Age group people that required Hospitalization and ICU



Count of people who got hospitalized and survived

Young people below the age of 20 years are not completely immune to COVID 19 some people required Hospitalization and also ICU to survive. It can be seen that most age group people survived without admitting to ICU. More number of people that needed ICU attention to survive are aged between 60â69 years.



It can be seen that some people aged between 20â29 died before shifting to ICU. And almost all other age group people died mostly when they are in ICU. Most of the older population aged 80+ died before shifting them to ICU.

Conclusion

Even though, the infection rate is more among the people aged below 60 years the death percentage is more among the individuals aged 60+ years. The fatality rate is very high among the female population aged 80+ years and the fatality rate is very high among the male population aged 70+ years. The total number of cases due to community spread and travel history followed the same trend for different age groups. The dead of very few young people happened because of community spread. Most of the old people aged between 70â79 survived without requiring medical attention and most people aged 80+ died before shifting to ICU. Some young people survived after getting medical attention.

Reference

[1] **Studies find men more prone to COVID-19 death**
Men are more than twice as likely to die of COVID-19 than women, regardless of age, according to a study today inâ¦ www.cidrap.umn.edu [2]

[3]https://www.weforum.org/agenda/2020/03/coronavirus-young-people-hospit alized-covid-19-chart /

[4]https://www.youtube.com/watch?v=yWUHQaeTf9U

[5]https://emedicine.medscape.com/article/2500114-overview #a6

1. https://www.cidrap.umn.edu/news-perspective/2020/04/studies-find-men-more-prone-covid-19-death
2. https://www.cidrap.umn.edu/news-perspective/2020/04/studies-find-men-more-prone-covid-19-death
3. https://www.weforum.org/agenda/2020/03/coronavirus-young-people-hospitalized-covid-19-chart/
4. https://www.youtube.com/watch?v=yWUHQaeTf9U
5. https://emedicine.medscape.com/article/2500114-overview#a6

```
library(readxl)
library(tidyverse)
library(plyr)
library(dplyr)
library(ggplot2)
library(dplyr)
library(scales)
library(sqldf)
library(reshape2)
library(gganimate)
covid_data <- read_excel("C:/Users/Jaswanth/Desktop/DataManagement/
covid_data.xlsx")

#Filtering gender with Male and Female
total_Gender=filter(covid_data,Gender=='Male'| Gender=='Female')

#Filtering people who are vulnerable according to age group

ggplot(total_Gender, aes(x= Age_group,group=Gender)) +
  geom_bar(aes(y = ..prop.., fill = factor(..x..)), stat="count") +
theme_minimal()+
  geom_text(aes( label = scales::percent(..prop..),
                 y= ..prop.. ), stat= "count", vjust = -.8) +
  facet_grid(~Gender) +
  scale_y_continuous(labels = scales::percent)+
  labs(fill = "Age Group", y = "Percentage of people affected",title="Percent
of People Affected According to Age Group")

#Filtering people who died according to age group

total_death=filter(total_Gender,Death_num =="1")
ggplot(total_death, aes(x= Age_group,  group=Gender)) +
  geom_bar(aes(y = ..prop.., fill = factor(..x..)), stat="count") +
theme_minimal()+
  geom_text(aes( label = scales::percent(..prop..),
                 y= ..prop.. ), stat= "count", vjust = -.8) +
  facet_grid(~Gender) +
  scale_y_continuous(labels = scales::percent)+
  labs( fill = "Age Group", y = "Percentage of people dead",title="Fatality
Rate of People According to Age Group")



#Mode of transmission for different age groups

ggplot(total_death, aes(x= Age_group,group=Transmission_status)) +
  geom_bar(aes(y = ..prop.., fill = factor(..x..)), stat="count",width = 0.8)
+ theme_minimal()+
  geom_text(aes( label = scales::percent(..prop..),
                 y= ..prop.. ), stat= "count", vjust = -1) +
  labs(fill = "Age Group", y = "Percentage of people affected")+
  facet_grid(~Transmission_status) +
  scale_y_continuous(labels = scales::percent)
```

```
#People  Hospitalized
ggplot(total_Gender, aes(x= Age_group,y=Hospitalization,group=Gender)) +
  geom_bar(aes(y = ..prop.., fill = factor(..x..)), stat="count") +
theme_minimal()+
  geom_text(aes( label = scales::percent(..prop..),
                 y= ..prop.. ), stat= "count", vjust = -.8) +
  facet_grid(~Gender) +
  scale_y_continuous(labels = scales::percent)+
  labs(x = "Different Age Group", y = "Percentage of people affected")


#People who got admitted in Hospital and survived
total_ICU=filter(covid_data,((Intensive_care_unit_status=='Yes'|
Intensive_care_unit_status=='No')& Hospitalization=='1'& Death_status=='No'))

animation1 <- ggplot(total_ICU, aes(x= Age_group,fill =
Intensive_care_unit_status)) +
  geom_bar(position=position_dodge(width=0.7))
+geom_text(aes(label=..count..),stat='count',position=position_dodge(width=0.7),vjust
= 1) +
  labs(x = "Younger population")
+transition_states(Age_group,transition_length=2,state_length=1)+shadow_mark()
+enter_fade()+
  exit_fade()
animate(animation1, nframes=100, end_pause=50, rewind= FALSE)

#People who admitted in ICU
total_ICU_death=filter(covid_data,((Intensive_care_unit_status=='Yes'|
Intensive_care_unit_status=='No')& Hospitalization=='1'& Death_status=='Yes'))

animation2 <- ggplot(total_ICU_death, aes(x= Age_group,fill =
Intensive_care_unit_status)) +
  geom_bar(position=position_dodge(width=0.7))
+geom_text(aes(label=..count..),stat='count',position=position_dodge(width=0.7),vjust
= 1) +
  labs(x = "Younger population",title='Population who got admitted in Hospital
but still Died')
+transition_states(Age_group,transition_length=2,state_length=1)+shadow_mark()
+enter_fade()+
  exit_fade()
animate(animation2, nframes=100, end_pause=50, rewind= FALSE)
```