

# Review of ggplot with Social Service Agency Data

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1 Make Sure You Have Installed ggplot! (1 Time)

```
install.packages("ggplot2")
```

2 Call Library (Each Time)

```
library(ggplot2)
```

3 Simulated Data

Table 1: Table continues below

ID	age	gender	program	mental_health_T1	mental_health_T2
4093	20.73	Male	Program B	105.7	120.8
4044	22.52	Female	Program B	95.05	104
4613	22.2	Female	Program C	91.6	92.9
1073	33.69	Male	Program B	94.01	94.01
4160	23.26	Female	Program A	96.62	91.94
4283	31.63	Female	Program B	97.12	107.5

latitude	longitude
42.03	-83.7
42.18	-83.79
42.23	-83.59
42.07	-83.59
42.31	-83.76
42.39	-83.87

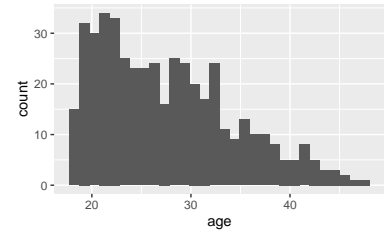
## 4 Basic ggplot

ggplot consists of the data, an aesthetic, geometrie(s), and options.

<https://agrogan1.github.io/R/introduction-to-ggplot2/a-simple-quick-example.html>

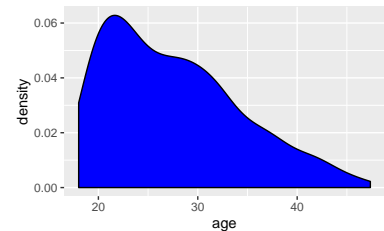
### 4.1 Histogram

```
ggplot(data = clients, # data I am using
       aes(x = age)) + # what I am graphing
  geom_histogram() # how I am graphing it
```



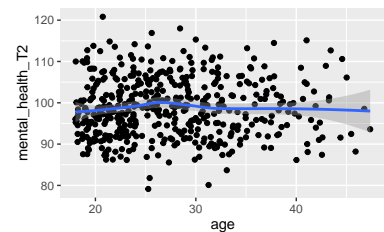
### 4.2 Density

```
ggplot(data = clients, # data I am using
       aes(x = age)) + # what I am graphing
  geom_density(fill = "blue") # how I am graphing it
```



### 4.3 Scatterplot With Smoother

```
ggplot(data = clients, # data I am using
       aes(x = age, # what I am graphing
           y = mental_health_T2)) +
  geom_point() + # how I am graphing it
  geom_smooth() # how I am graphing it
```



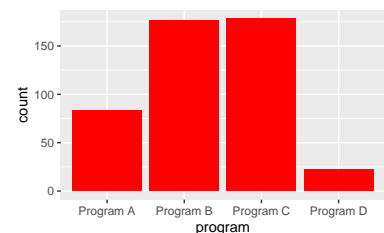
## 5 Bar Charts Are Tricky

[https://agrogan1.github.io/myposts/bar\\_charts\\_in\\_ggplot2.html](https://agrogan1.github.io/myposts/bar_charts_in_ggplot2.html)

### 5.1 Bar Chart Counting Up Observations

Simple bar chart counting up a *categorical* variable.

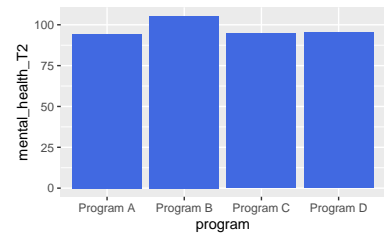
```
ggplot(data = clients, # data I am using
       aes(x = program)) + # what I am graphing
  geom_bar(fill = "red") # how I am graphing it (counting up)
```



### 5.2 Bar Chart of Means

Bar chart of means of a *continuous* variable by a *categorical* variable.

```
ggplot(data = clients, # data I am using
       aes(x = program, # what I am graphing
           y = mental_health_T2)) + # what I am graphing
  stat_summary(fun.y = mean, # summarizing y
              geom = "bar", # with bars
              fill = "royalblue")
```

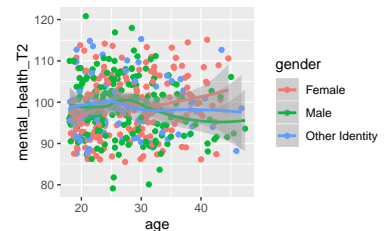


## 6 Get Some Extra Information on the Graph!

### 6.1 Add information to the aesthetic.

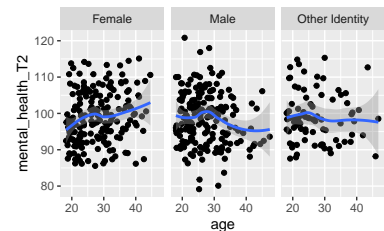
Color as information.

```
ggplot(data = clients, # data I am using
       aes(x = age, # what I am graphing
           y = mental_health_T2, # what I am graphing
           color = gender)) + # adding info to aesthetic
  geom_point() + # how I am graphing it (counting up)
  geom_smooth() # how I am graphing it (counting up)
```



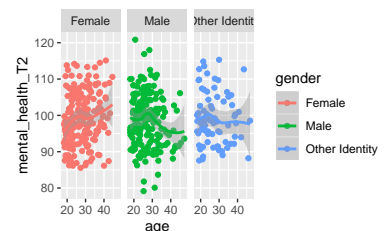
### 6.2 Facet Wrap (Small Multiples)

```
ggplot(data = clients, # data I am using
       aes(x = age, # what I am graphing
           y = mental_health_T2)) + # what I am graphing
  geom_point() + # how I am graphing it
  geom_smooth() + # how I am graphing it
  facet_wrap(~gender) # facet wrap on gender
```



### 6.3 Both!

```
ggplot(data = clients, # data I am using
       aes(x = age, # what I am graphing
           y = mental_health_T2, # what I am graphing
           color = gender)) + # what I am graphing
  geom_point() + # how I am graphing it
  geom_smooth() + # how I am graphing it
  facet_wrap(~gender) # facet wrap on gender
```

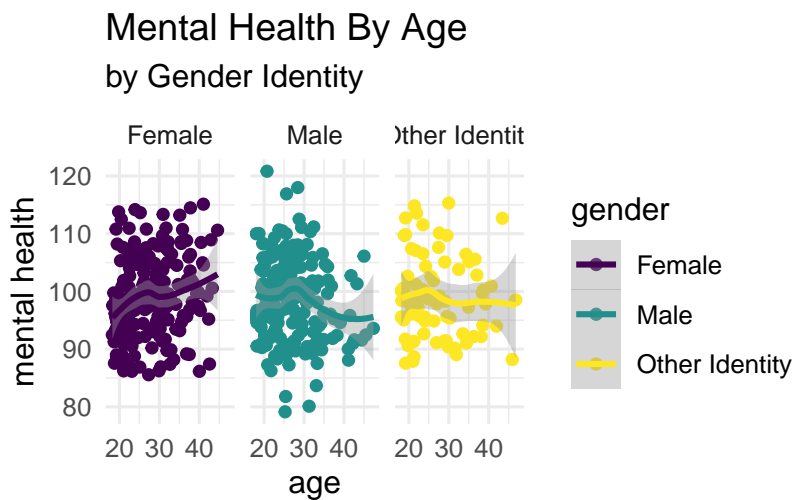


## 7 Add Labels and Options

<https://jrnold.github.io/ggthemes/>

```
library(ggthemes) # for themes

ggplot(data = clients, # data I am using
       aes(x = age, # what I am graphing
           y = mental_health_T2, # what I am graphing
           color = gender)) + # what I am graphing
  geom_point() + # how I am graphing it
  geom_smooth() + # how I am graphing it
  facet_wrap(~gender) + # facet wrap on gender
  labs(title = "Mental Health By Age",
       subtitle = "by Gender Identity",
       x = "age",
       y = "mental health") +
  scale_color_viridis_d() + # beautiful colors!
  theme_minimal()
```



### 7.1 Lots Of Things Are Possible!

<https://agrogan1.github.io/dataviz/how-to-choose-a-chart/how-to-choose-a-chart-v3.html>

<https://agrogan1.github.io/R/introduction-to-ggplot2/background.html>