

# MentalHealthAnalysisInsights.R

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```
library(tidyverse)

## -- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
## v dplyr      1.1.2      v readr      2.1.4
## v forcats    1.0.0      v stringr    1.5.0
## v ggplot2     3.4.2      v tibble     3.2.1
## v lubridate  1.9.2      v tidyr      1.3.0
## v purrr       1.0.1
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors

library(ggplot2)
#read our cleaned up data into the env
data_analytic<- readRDS("../test/data/interim/analytic2023_c1.rds")
desc <- readRDS("data/processed/colDesc_analysis2023.rds")

v005_race_vars <- c("v005_race_hispanic", "v005_race_white", "v005_race_asian", "v005_race_aian", "v005_race_others")
v138_race_vars <- c("v138_race_hispanic", "v138_race_white", "v138_race_asian", "v138_race_aian", "v138_race_others")
v063_race_vars <- c("v063_race_hispanic", "v063_race_white", "v063_race_asian", "v063_race_aian", "v063_race_others")

#Preventable Hospital stays(v005): Rate of hospital stays for ambulatory-care sensitive conditions per 100,000 population.
#Drug overdose (v138): Number of drug poisoning deaths per 100,000 population.
#Median House Hold Income(v063): The income where half of households in a county earn more and half of households earn less.
#MHD(v042_rawvalue): Average number of mentally unhealthy days reported in past 30 days (age-adjusted).
#FMD(v145):Percentage of adults reporting 14 or more days of poor mental health per month (age-adjusted).
#PFH(v002): Percentage of adults reporting fair or poor health (age-adjusted).

ggplot(data_analytic, aes(y = log(v005_rawvalue), x = log(v042_rawvalue)))+
  geom_point(color="green", alpha =0.5)+
  geom_smooth()+
  xlab(desc[["v042_rawvalue"]]) +
  ylab(desc[["v005_rawvalue"]]) +
  theme(panel.background = element_rect(fill = "black"),
```

```

plot.background = element_rect(fill = "black"),
panel.grid.major = element_line(color = "white", size = 0.1),
panel.grid.minor = element_line(color = "white", size = 0.05),
text = element_text(color = "white"))

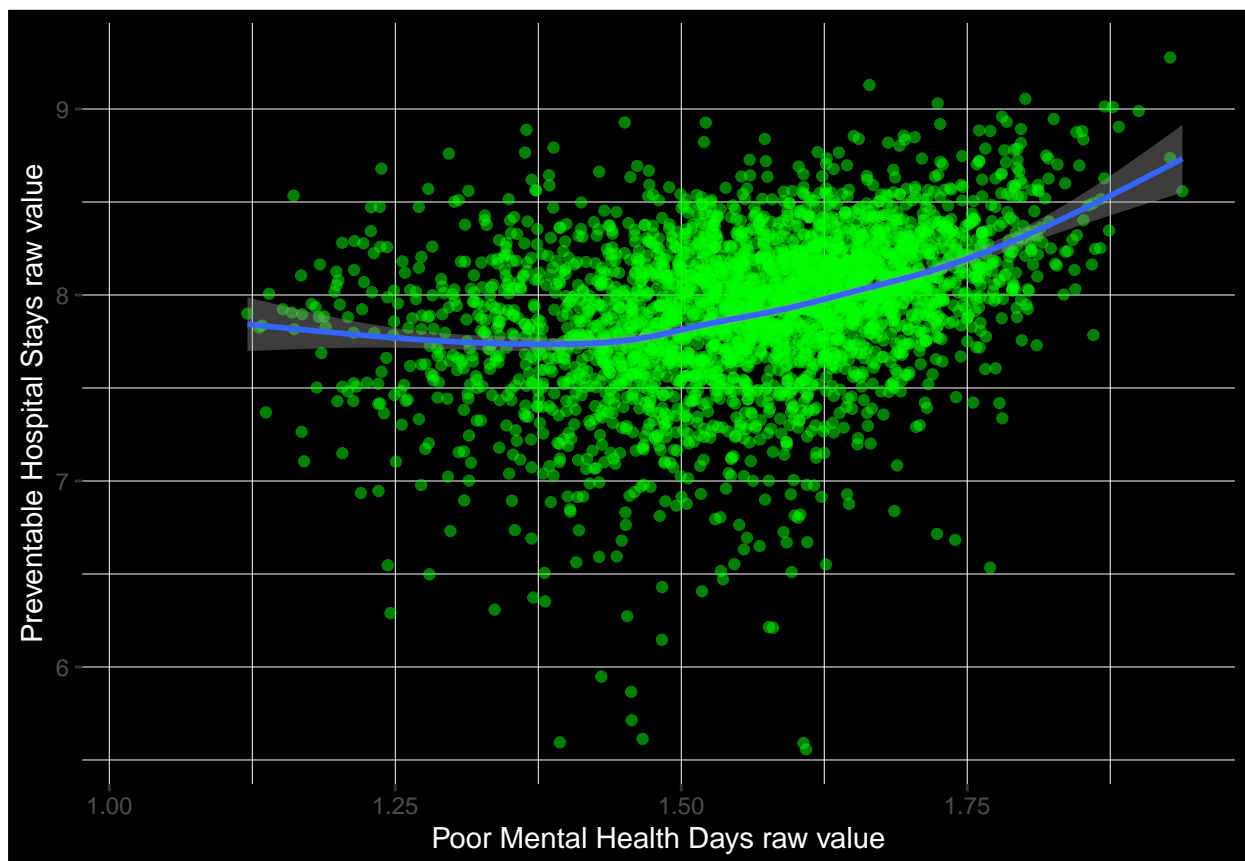
```

```

## Warning: The `size` argument of `element_line()` is deprecated as of ggplot2 3.4.0.
## i Please use the `linewidth` argument instead.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.

## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'
## Warning: Removed 71 rows containing non-finite values (`stat_smooth()`).
## Warning: Removed 71 rows containing missing values (`geom_point()`).

```



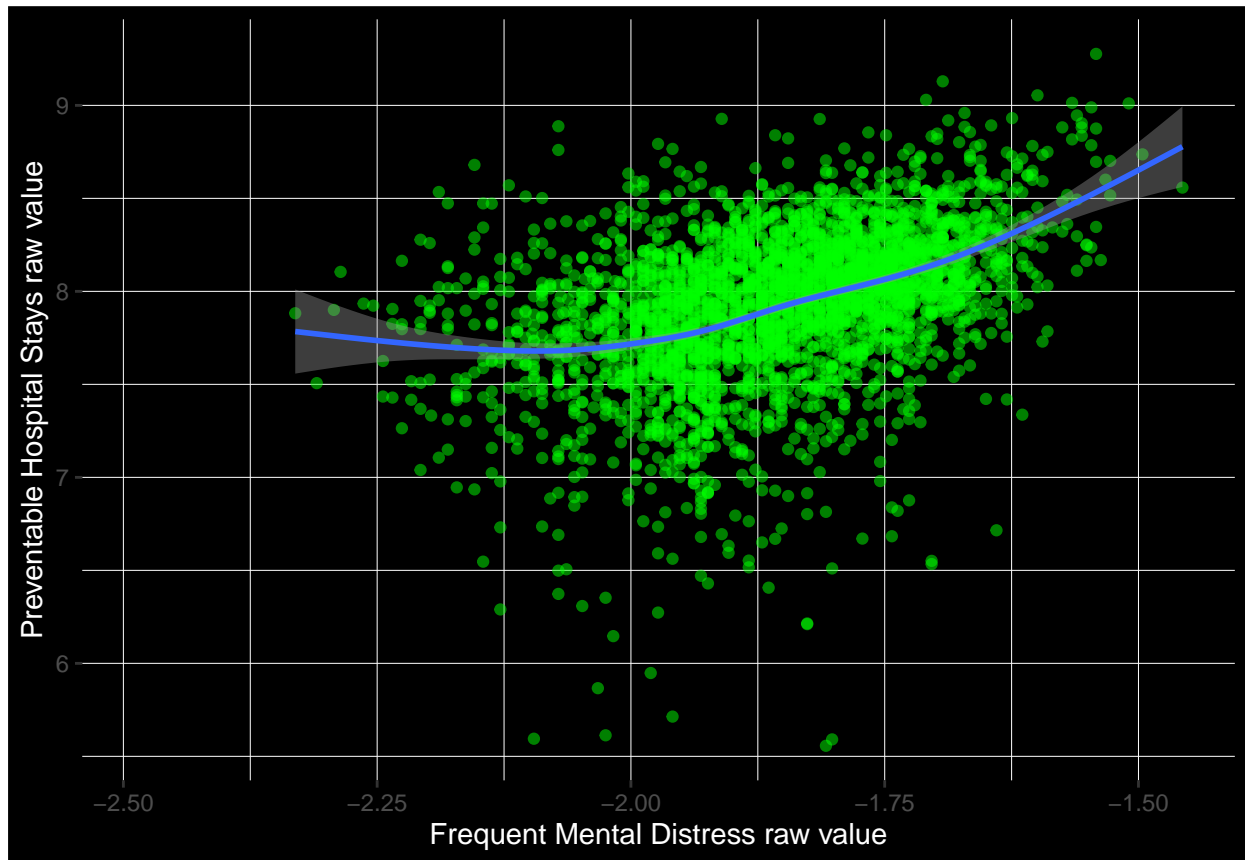
```

ggplot(data_analytic, aes(y = log(v005_rawvalue), x = log(v145_rawvalue)))+
  geom_point(color="green",alpha =0.5)+
  geom_smooth() +

  xlab(desc[["v145_rawvalue"]]) +
  ylab(desc[["v005_rawvalue"]])+
  theme(panel.background = element_rect(fill = "black"),
        plot.background = element_rect(fill = "black"),
        panel.grid.major = element_line(color = "white", size = 0.1),
        panel.grid.minor = element_line(color = "white", size = 0.05),
        text = element_text(color = "white"))

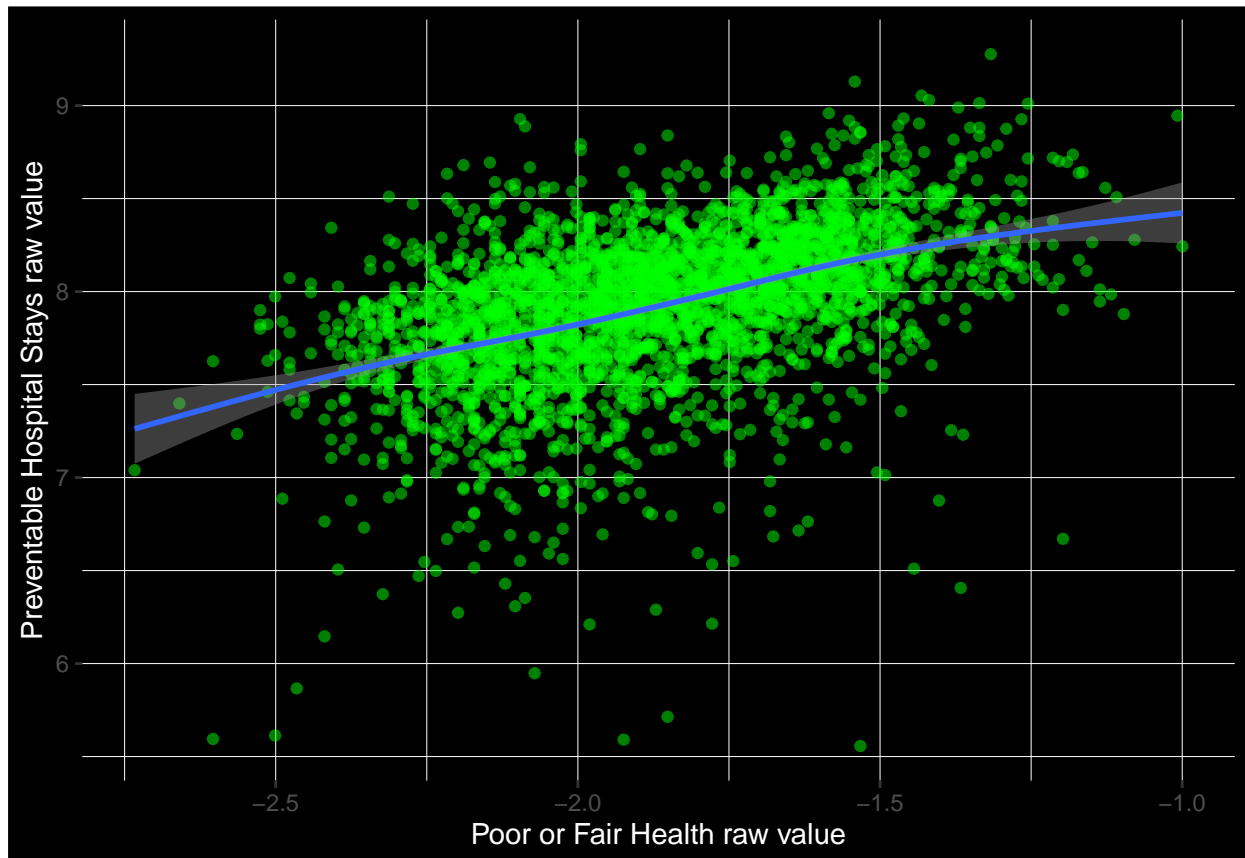
```

```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'
## Warning: Removed 71 rows containing non-finite values (`stat_smooth()`).
## Removed 71 rows containing missing values (`geom_point()`).
```



```
ggplot(data_analytic, aes(y = log(v005_rawvalue), x = log(v002_rawvalue)))+
  geom_point(color="green", alpha =0.5)+
  geom_smooth()+
  xlab(desc[["v002_rawvalue"]]) +
  ylab(desc[["v005_rawvalue"]])+
  theme(panel.background = element_rect(fill = "black"),
        plot.background = element_rect(fill = "black"),
        panel.grid.major = element_line(color = "white", size = 0.1),
        panel.grid.minor = element_line(color = "white", size = 0.05),
        text = element_text(color = "white"))
```

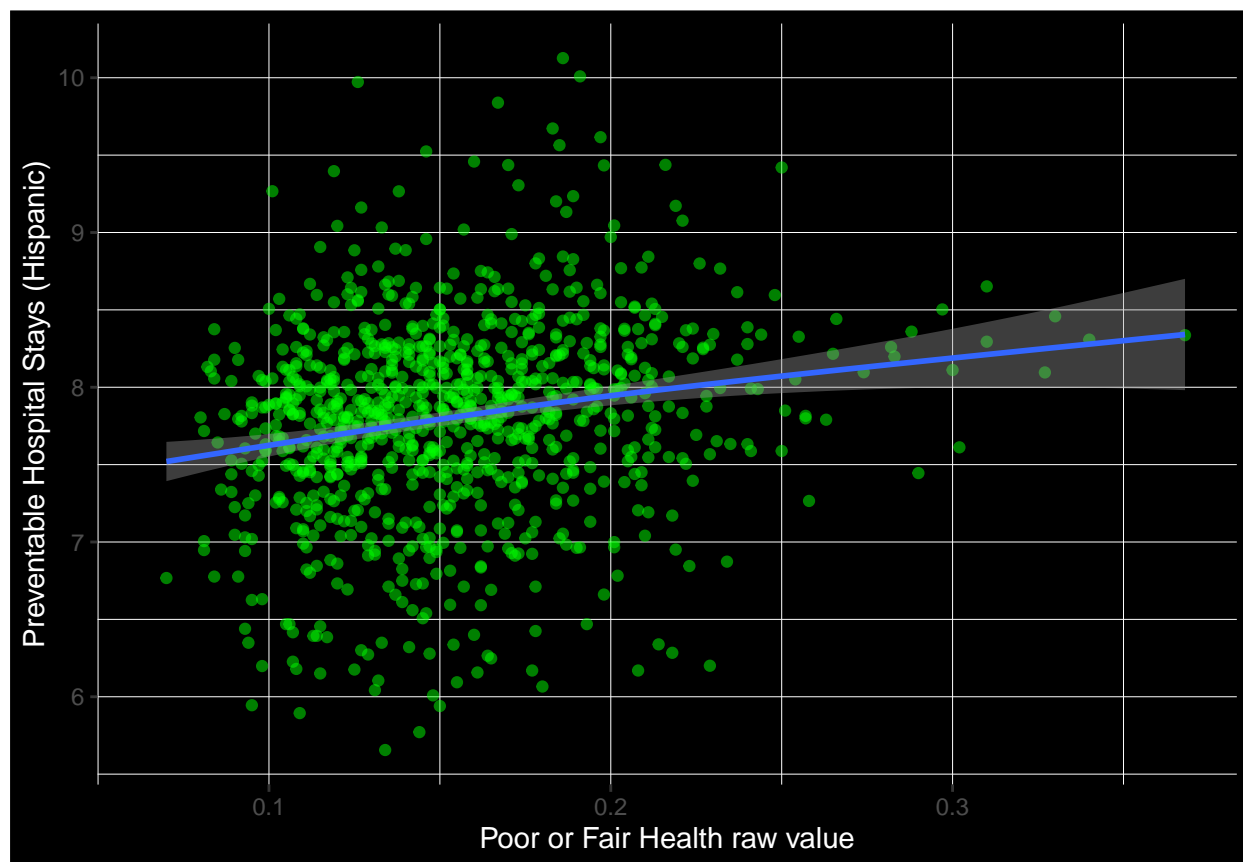
```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'
## Warning: Removed 71 rows containing non-finite values (`stat_smooth()`).
## Removed 71 rows containing missing values (`geom_point()`).
```



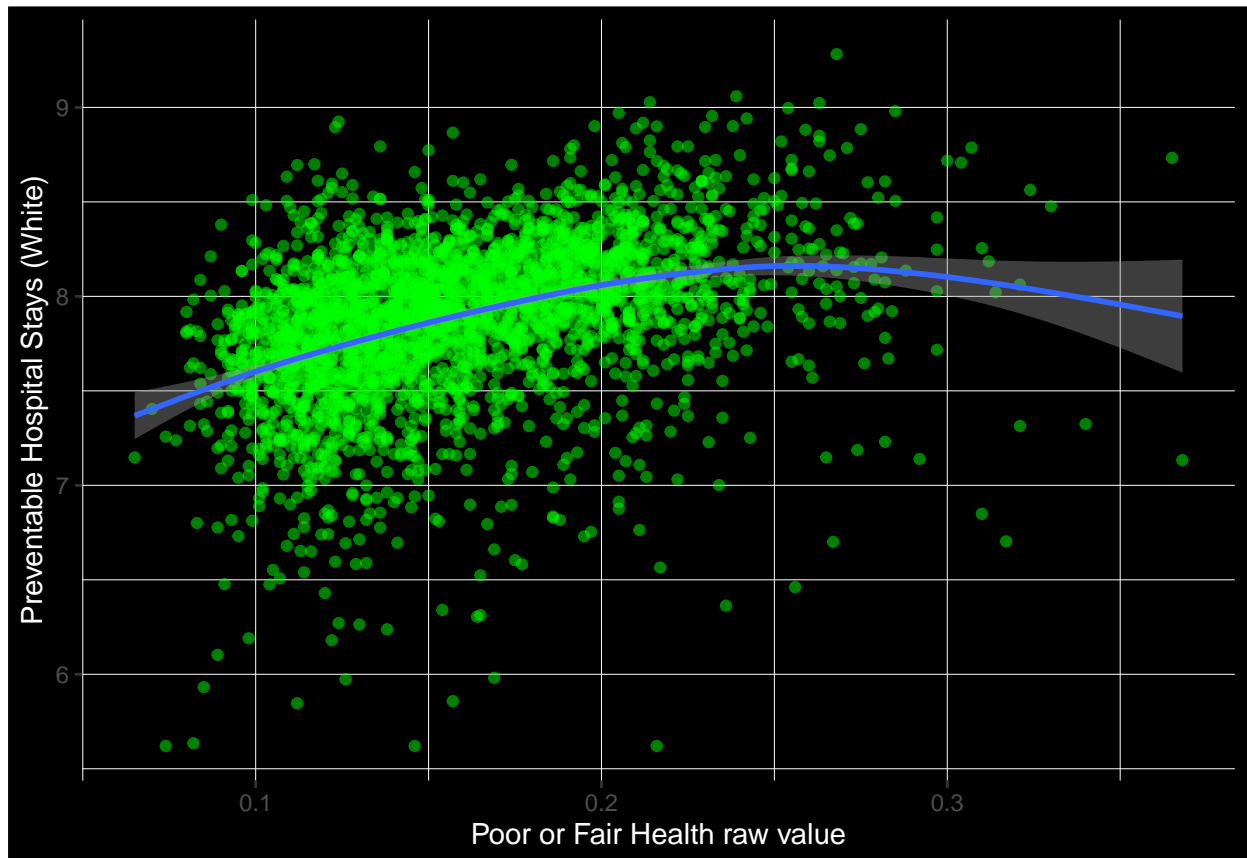
```
for( var in v005_race_vars){
  v002byraceVsPMHD <- ggplot(data_analytic, aes_string(y = paste0("log(",var,")"), x = "(v002_rawvalue)")) +
    geom_point(color="green", alpha =0.5)+
    geom_smooth()+
    xlab(desc[["v002_rawvalue"]]) +
    ylab(desc[[var]])+
    theme(panel.background = element_rect(fill = "black"),
          plot.background = element_rect(fill = "black"),
          panel.grid.major = element_line(color = "white", size = 0.1),
          panel.grid.minor = element_line(color = "white", size = 0.05),
          text = element_text(color = "white"))
  print(v002byraceVsPMHD)
}
```

```
## Warning: `aes_string()` was deprecated in ggplot2 3.0.0.
## i Please use tidy evaluation idioms with `aes()`.
## i See also `vignette("ggplot2-in-packages")` for more information.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.

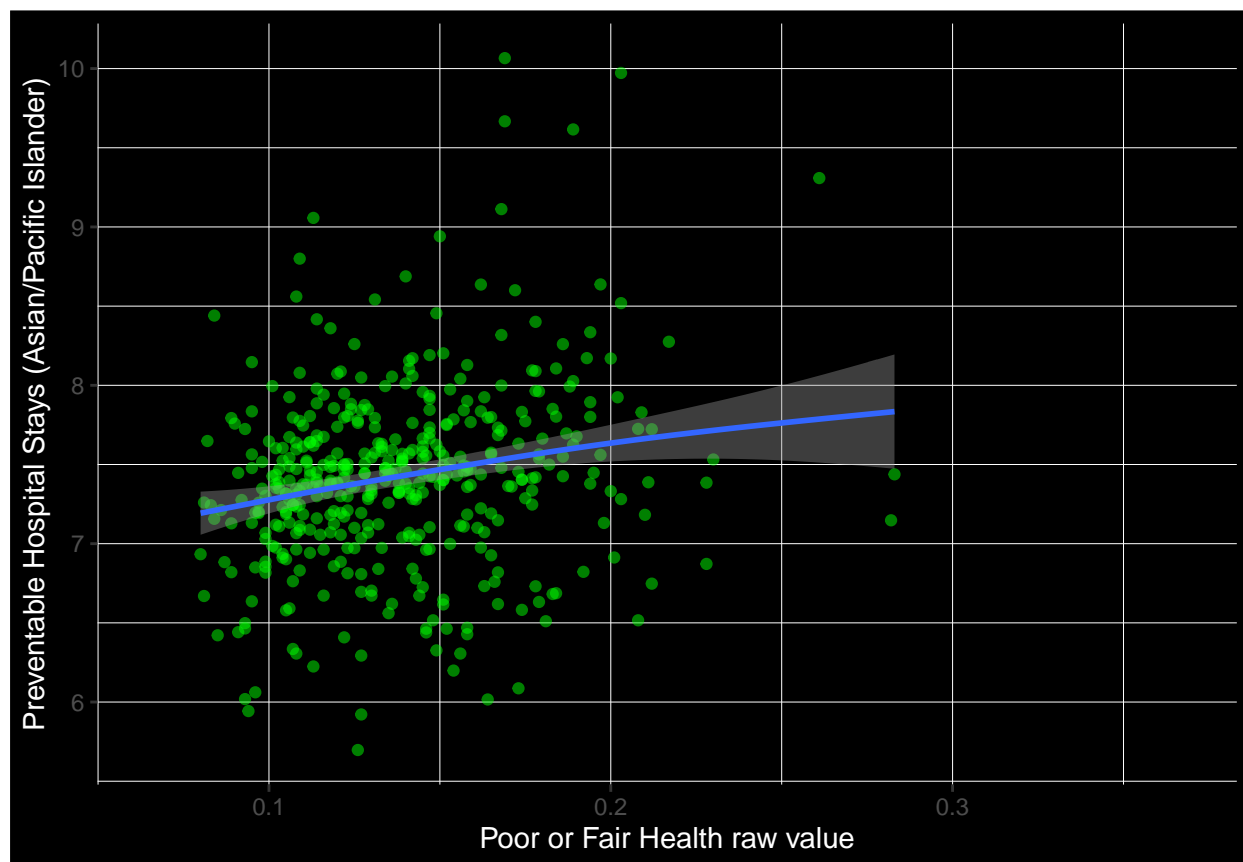
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'
## Warning: Removed 2222 rows containing non-finite values (`stat_smooth()`).
## Warning: Removed 2222 rows containing missing values (`geom_point()`).
```



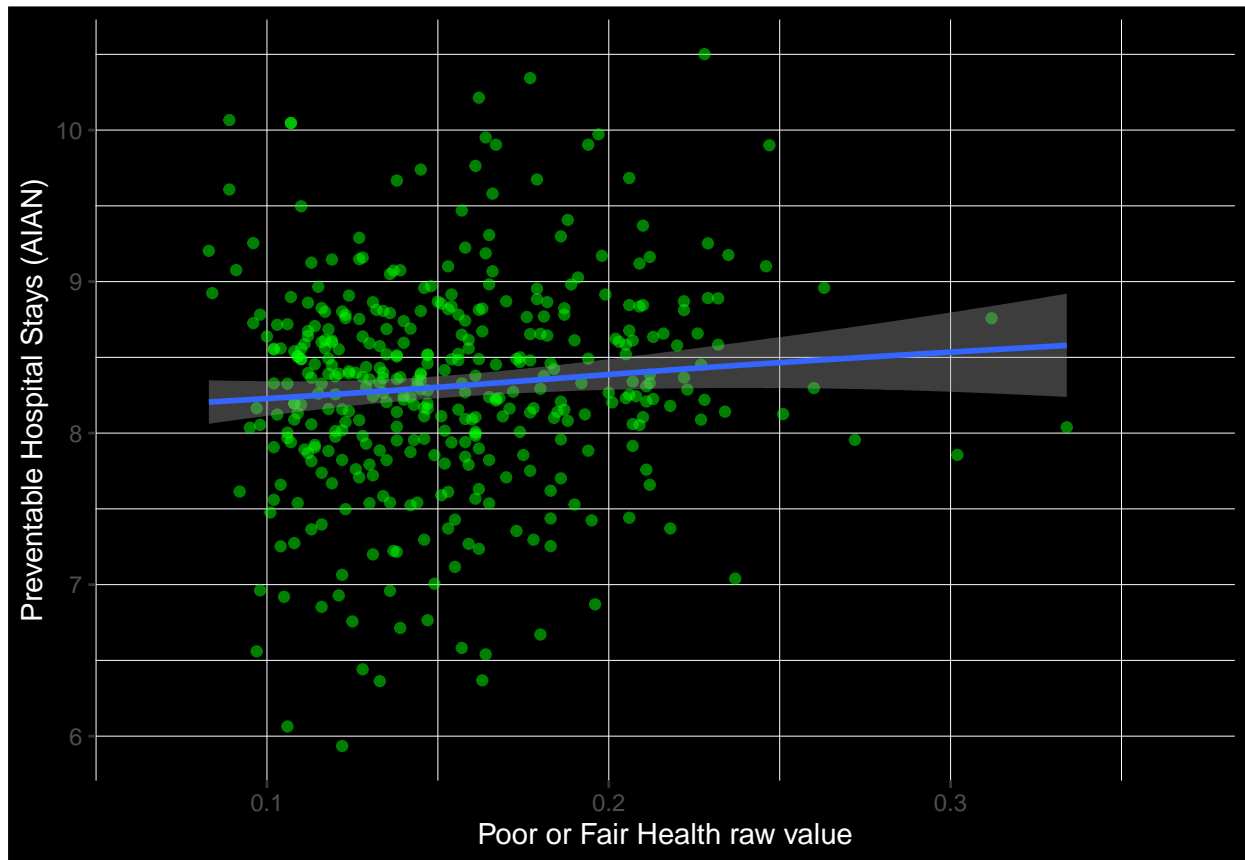
```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 105 rows containing non-finite values (`stat_smooth()`).  
## Warning: Removed 105 rows containing missing values (`geom_point()`).
```



```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 2760 rows containing non-finite values (`stat_smooth()`).  
## Warning: Removed 2760 rows containing missing values (`geom_point()`).
```

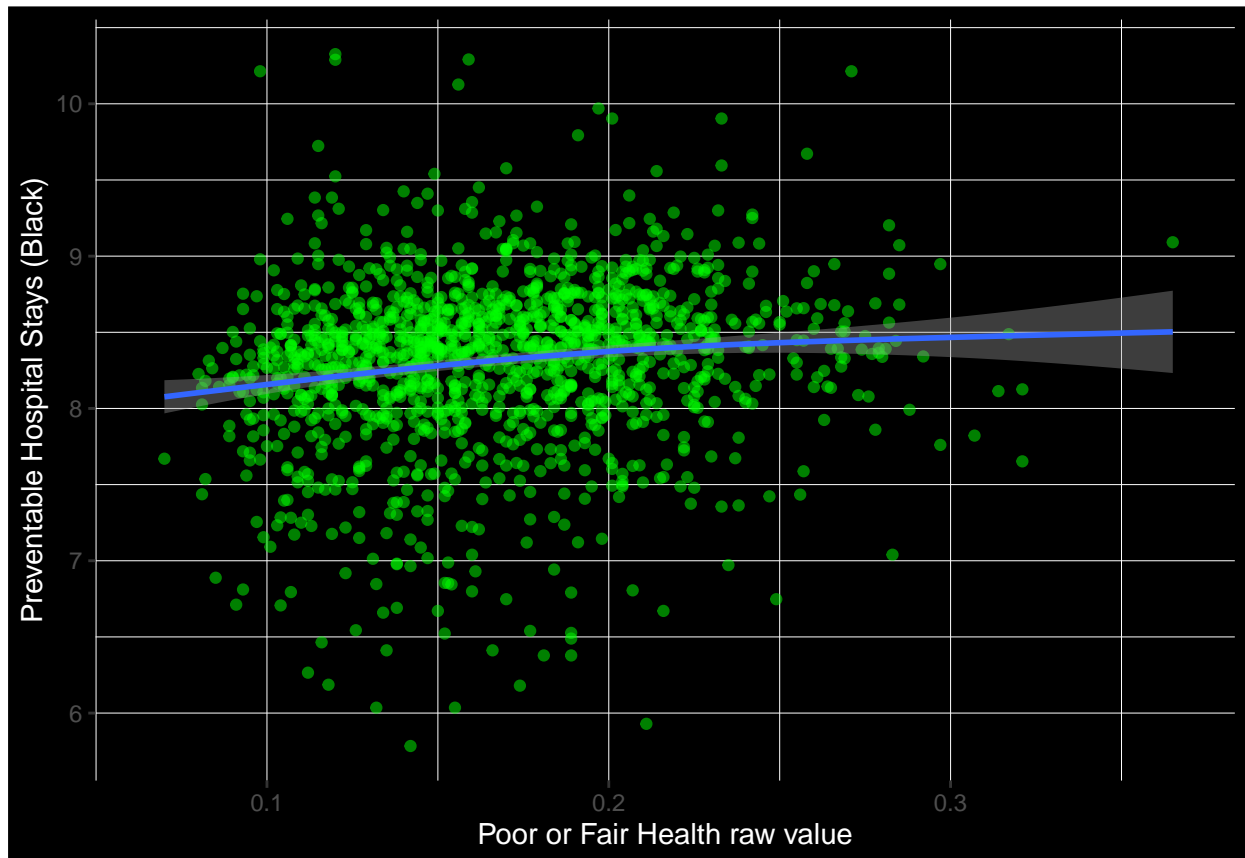


```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 2809 rows containing non-finite values (`stat_smooth()`).  
## Warning: Removed 2809 rows containing missing values (`geom_point()`).
```



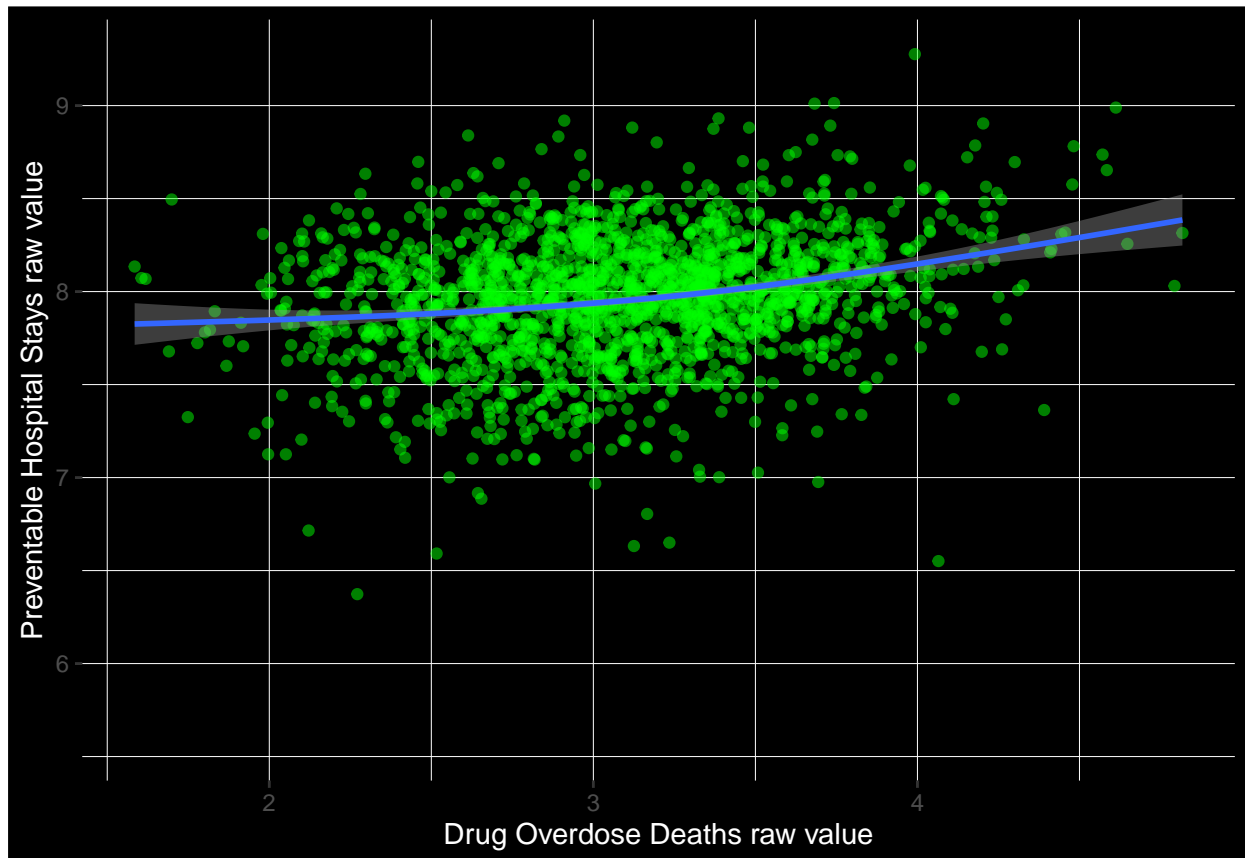
```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 1765 rows containing non-finite values (`stat_smooth()`).  
## Warning: Removed 1765 rows containing missing values (`geom_point()`).
```





```
ggplot(data_analytic, aes(y = log(v005_rawvalue), x = log(v138_rawvalue)))+
  geom_point(color="green", alpha =0.5)+
  geom_smooth()+
  xlab(desc[["v138_rawvalue"]]) +
  ylab(desc[["v005_rawvalue"]])+
  theme(panel.background = element_rect(fill = "black"),
        plot.background = element_rect(fill = "black"),
        panel.grid.major = element_line(color = "white", size = 0.1),
        panel.grid.minor = element_line(color = "white", size = 0.05),
        text = element_text(color = "white"))

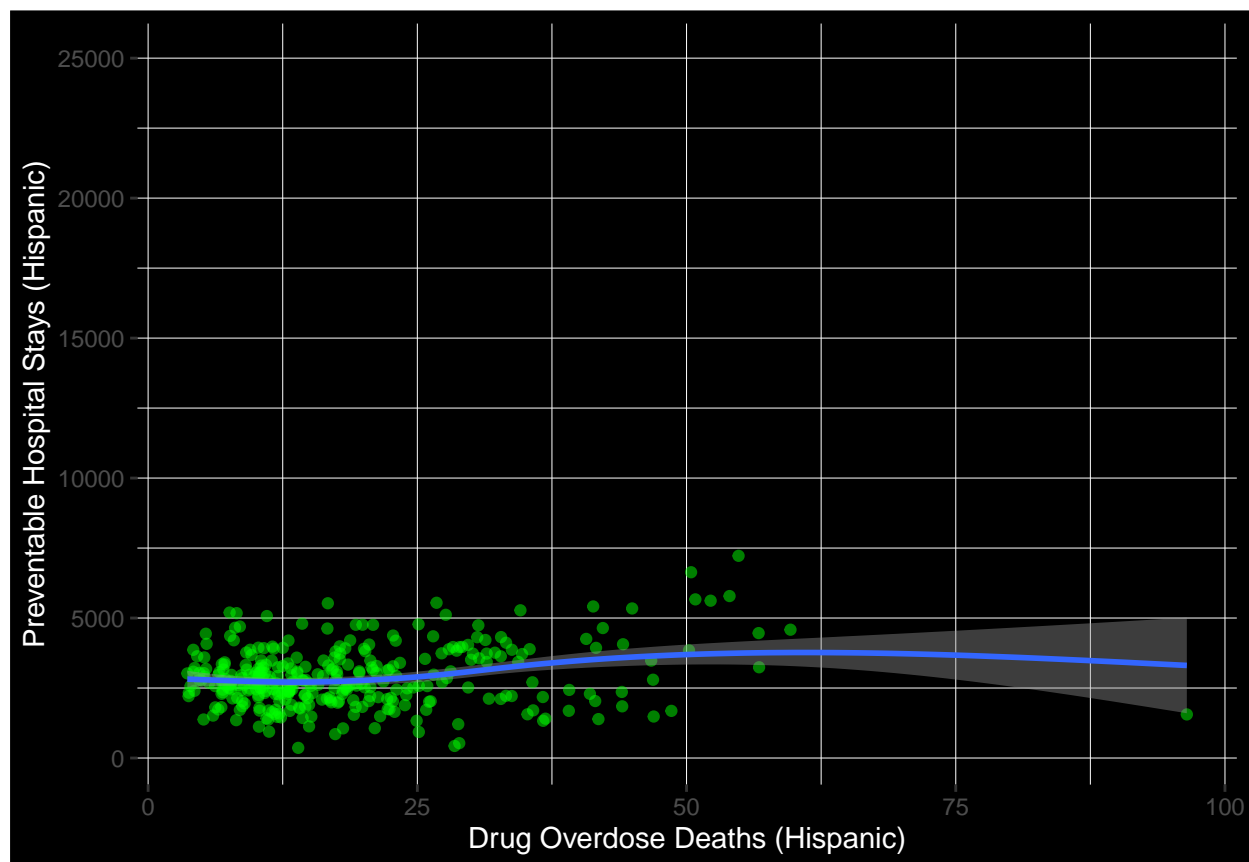
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'
## Warning: Removed 1347 rows containing non-finite values (`stat_smooth()`).
## Warning: Removed 1347 rows containing missing values (`geom_point()`).
```



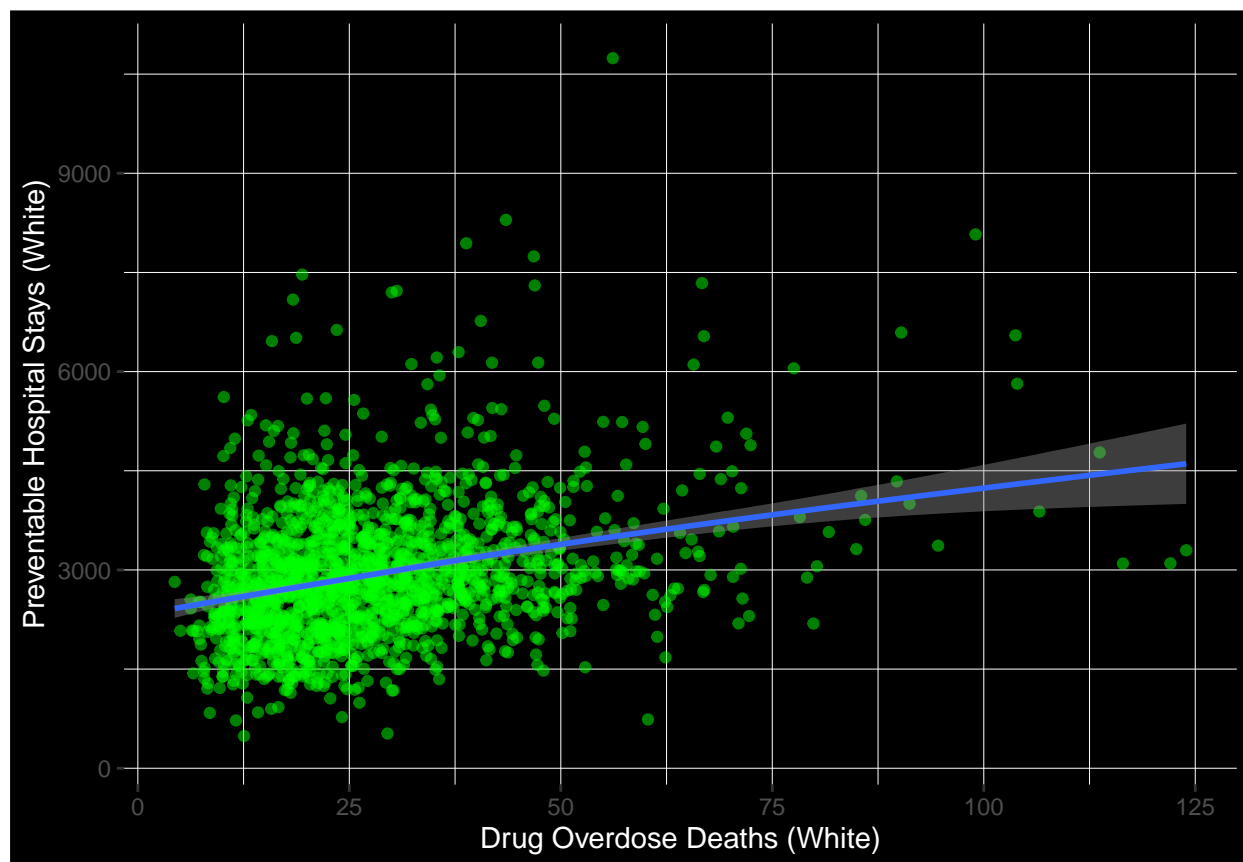
```
for(i in 1:length(v138_race_vars)){
  var_x <- v138_race_vars[i]
  var_y <- v005_race_vars[i]

  v138byracegraph <-ggplot(data_analytic, aes_string(y = var_y, x = var_x))+
    geom_point(color="green", alpha =0.5)+
    geom_smooth()+
    xlab(desc[[var_x]]) +
    ylab(desc[[var_y]])+
    theme(panel.background = element_rect(fill = "black"),
          plot.background = element_rect(fill = "black"),
          panel.grid.major = element_line(color = "white", size = 0.1),
          panel.grid.minor = element_line(color = "white", size = 0.05),
          text = element_text(color = "white"))
  print(v138byracegraph)
}
```

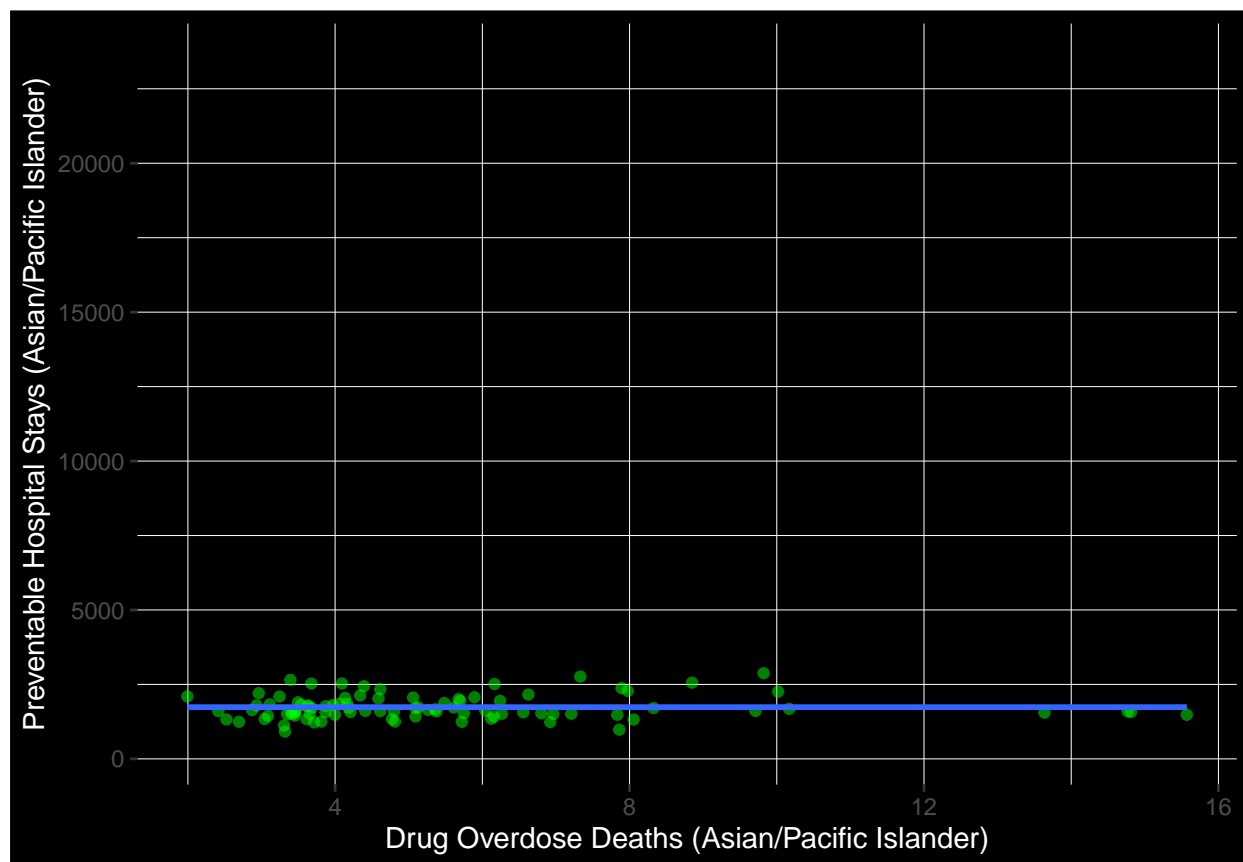
```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'
## Warning: Removed 2859 rows containing non-finite values (`stat_smooth()`).
## Warning: Removed 2859 rows containing missing values (`geom_point()`).
```



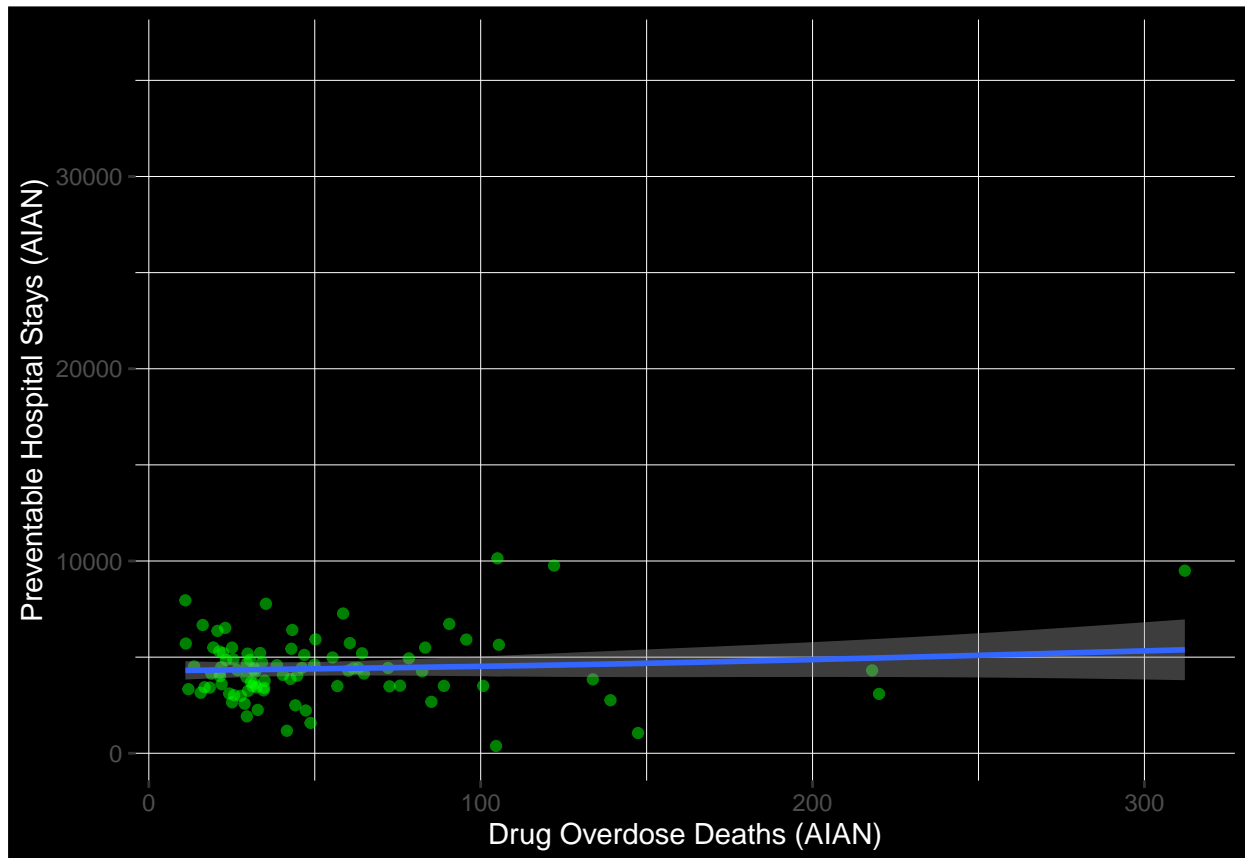
```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 1461 rows containing non-finite values (`stat_smooth()`).  
## Warning: Removed 1461 rows containing missing values (`geom_point()`).
```



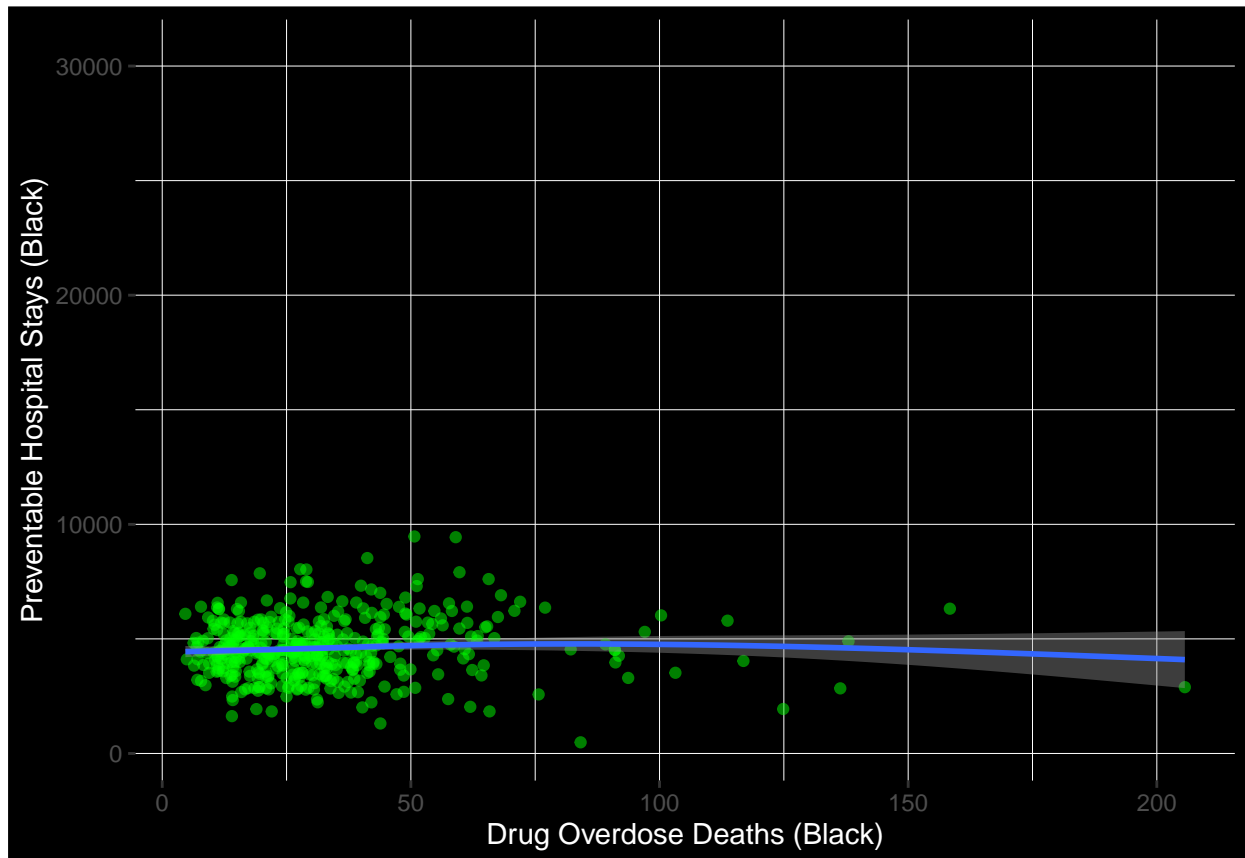
```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 3103 rows containing non-finite values (`stat_smooth()`).  
## Warning: Removed 3103 rows containing missing values (`geom_point()`).
```



```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 3103 rows containing non-finite values (`stat_smooth()`).  
## Removed 3103 rows containing missing values (`geom_point()`).
```



```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 2745 rows containing non-finite values (`stat_smooth()`).  
## Warning: Removed 2745 rows containing missing values (`geom_point()`).
```



```
for(i in 1:length(v063_race_vars)){
  var_x <- v063_race_vars[i]
  var_y <- v005_race_vars[i]

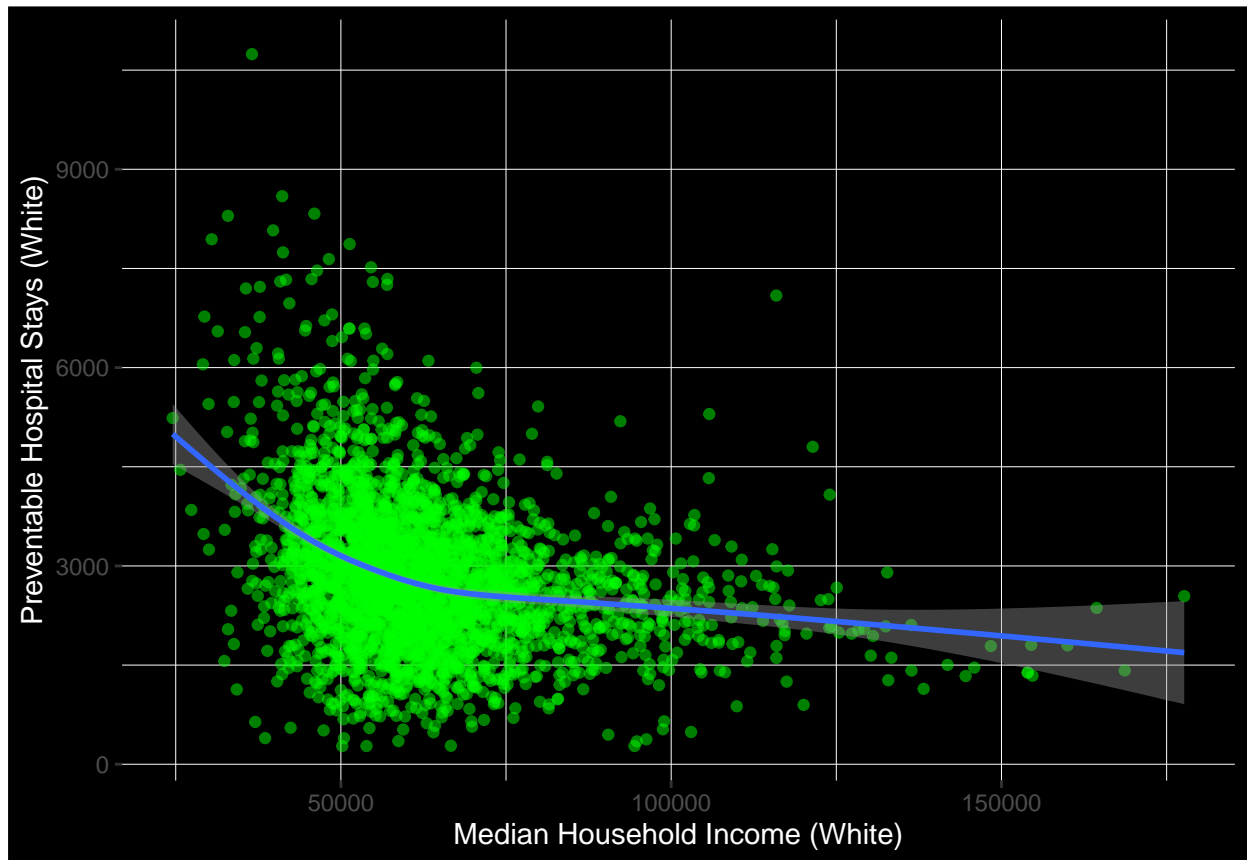
  v063byracegraph <-ggplot(data_analytic, aes_string(y = var_y, x = var_x))+
    geom_point(color="green", alpha =0.5)+
    geom_smooth()+
    xlab(desc[[var_x]]) +
    ylab(desc[[var_y]])+
    theme(panel.background = element_rect(fill = "black"),
          plot.background = element_rect(fill = "black"),
          panel.grid.major = element_line(color = "white", size = 0.1),
          panel.grid.minor = element_line(color = "white", size = 0.05),
          text = element_text(color = "white"))
  print(v063byracegraph)
}
```

```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'
## Warning: Removed 2230 rows containing non-finite values (`stat_smooth()`).
## Warning: Removed 2230 rows containing missing values (`geom_point()`).
```

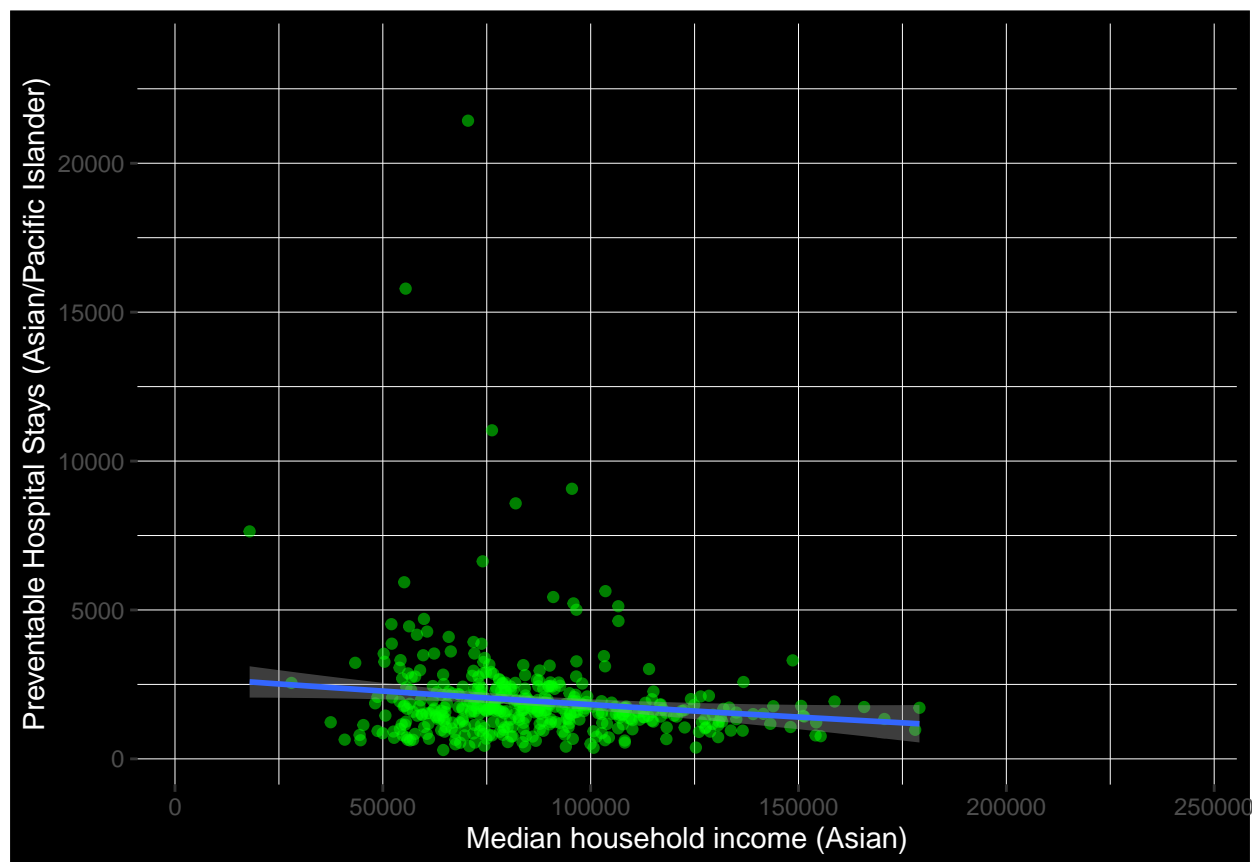


```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 106 rows containing non-finite values (`stat_smooth()`).  
## Warning: Removed 106 rows containing missing values (`geom_point()`).
```

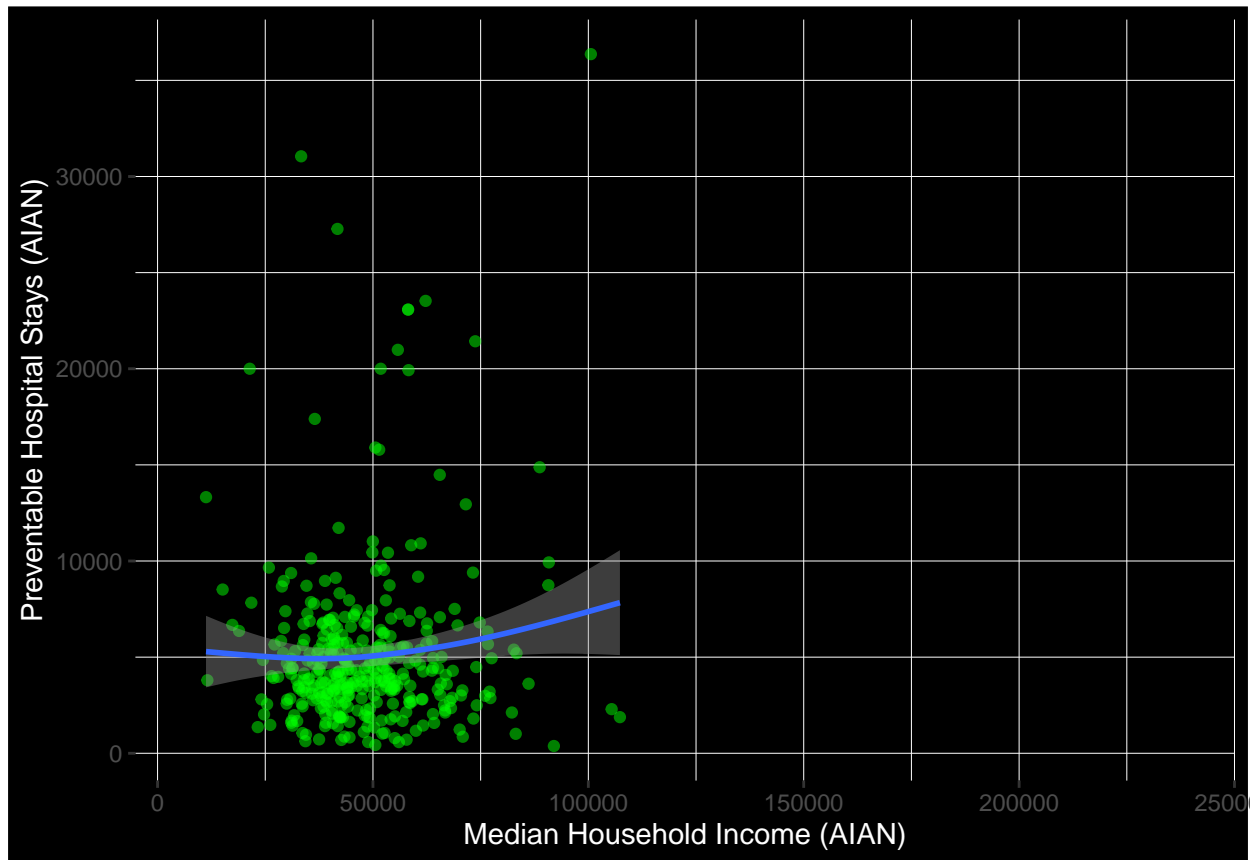




```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 2769 rows containing non-finite values (`stat_smooth()`).  
## Warning: Removed 2769 rows containing missing values (`geom_point()`).
```



```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'
## Warning: Removed 2831 rows containing non-finite values (`stat_smooth()`).
## Warning: Removed 2831 rows containing missing values (`geom_point()`).
```



```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'  
## Warning: Removed 1835 rows containing non-finite values (`stat_smooth()`).  
## Warning: Removed 1835 rows containing missing values (`geom_point()`).
```

