GDP_Analysis

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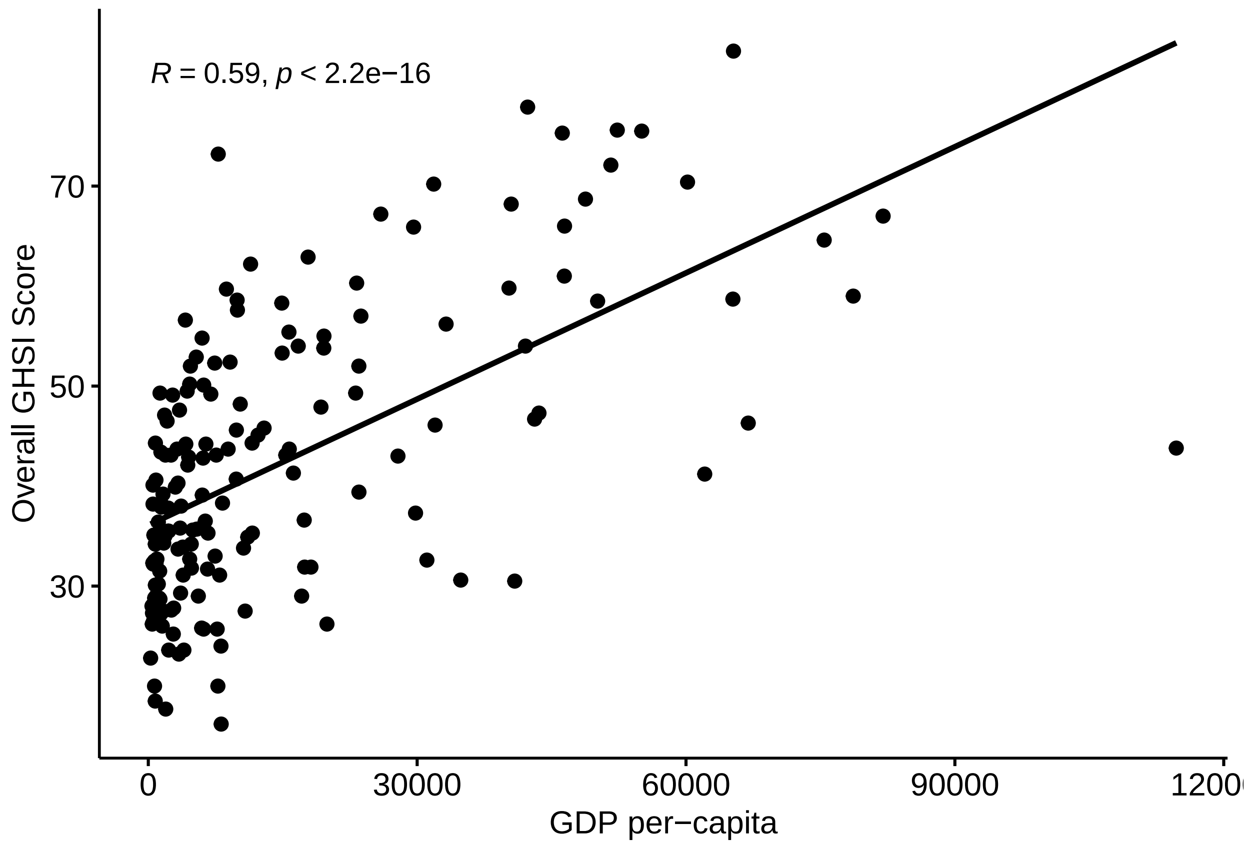
```
# import libraries
library(tidyverse)
library(lubridate)
library(ggpubr)
library(dplyr)

# load sixmonth data, omitting NA values
sixmonth_data = na.omit(read.csv(".\\prepped_data\\sixmonth.csv", check.names = FALSE))

# add gdp_pc quartile
sixmonth_data$gdp_pc_quartile <- ntile(sixmonth_data$gdp_pc, 4)
```

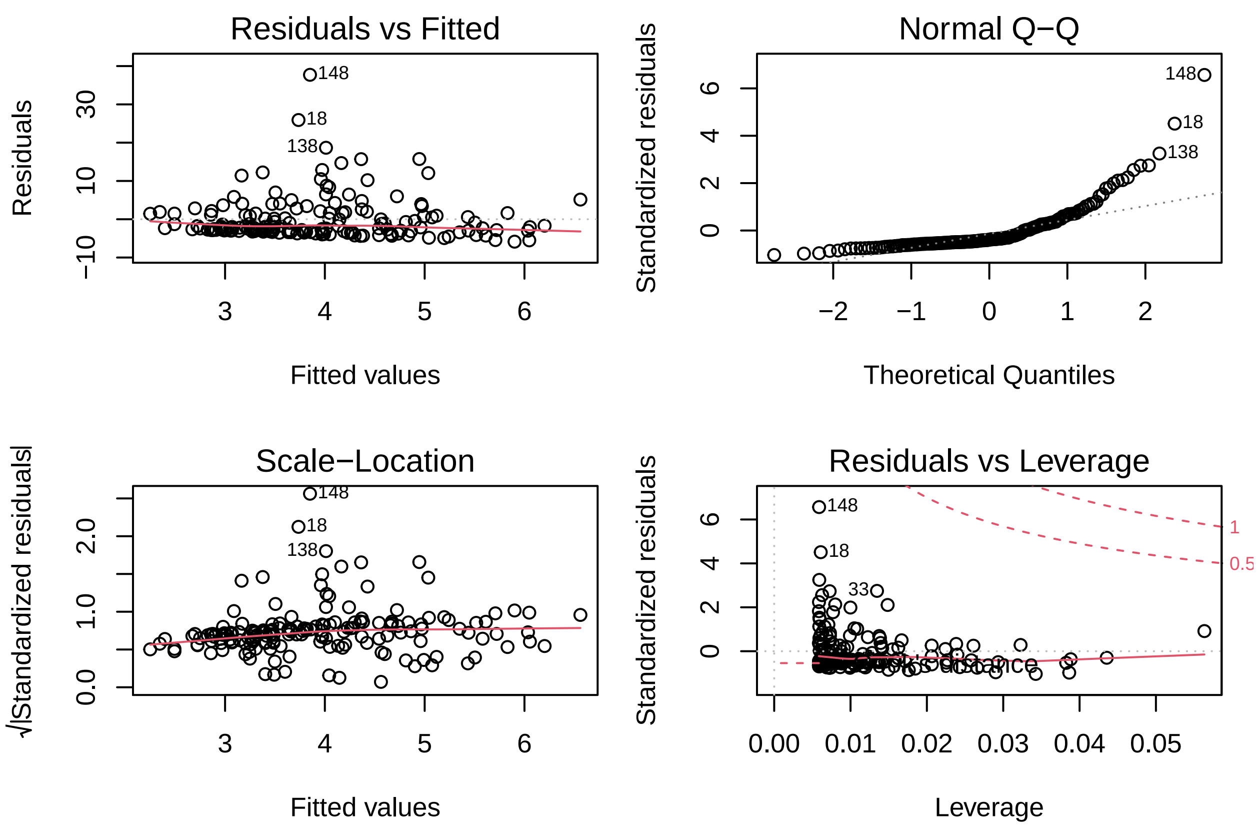
```
# check correlation between gdp_pc and overall GHSI index
ggscatter(sixmonth_data,x='gdp_pc' ,y='overall',
          add='reg.line',cor.coef=TRUE,cor.method='pearson',
          xlab='GDP per-capita',ylab='Overall GHSI Score')
```



```r
# cases per-capita vs overall GHSI
summary(lm(casepc ~ overall, data = sixmonth_data))$coefficients
```

```
##               Estimate Std. Error   t value   Pr(>|t|)
## (Intercept) 1.21187052 1.40027022 0.8654548 0.38801614
## overall     0.06405954 0.03142626 2.0384078 0.04306759
```

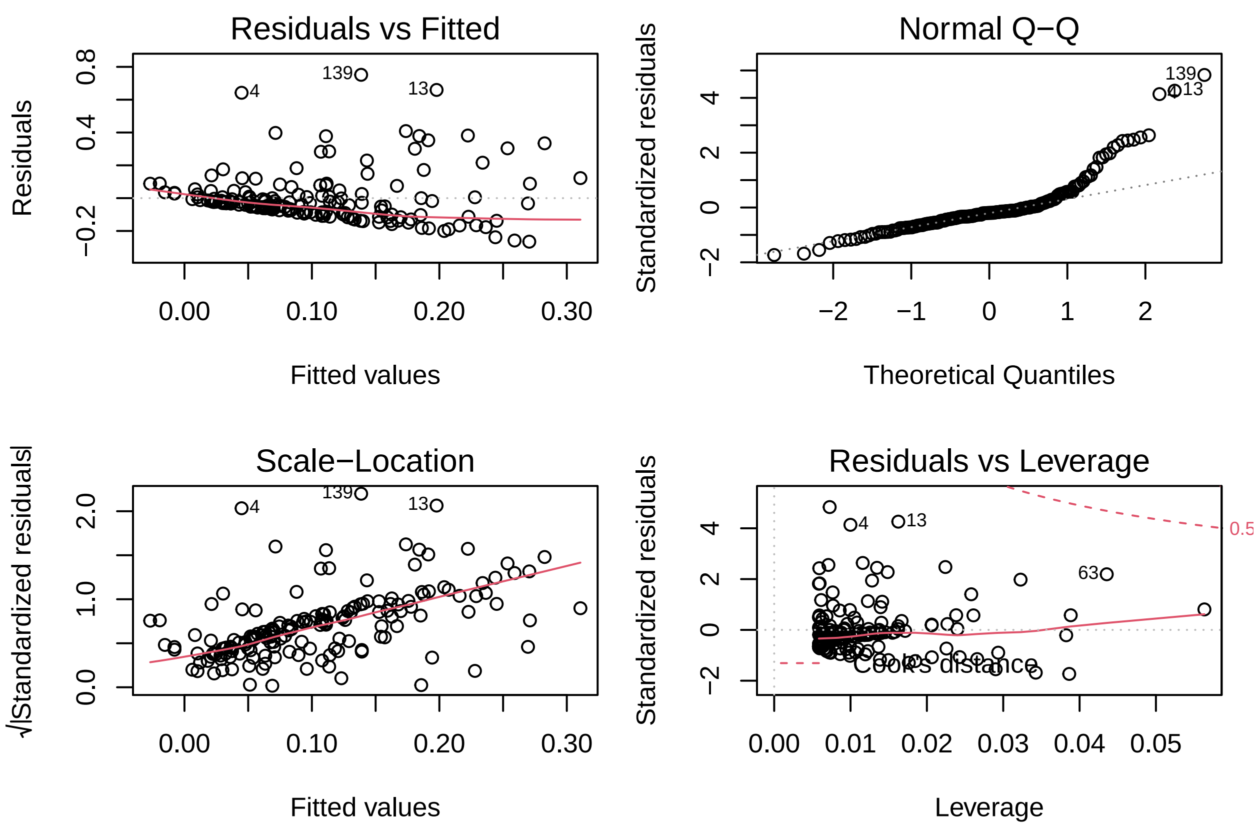
```r
par(mfrow=c(2,2),mar=c(5,4,2,1))
plot(lm(casepc ~ overall, data = sixmonth_data))
```



```r
# deaths per-capita vs overall GHSI
summary(lm(deathpc ~ overall, data = sixmonth_data))$coefficients
```

```
##                 Estimate   Std. Error   t value     Pr(>|t|)
## (Intercept) -0.108134228 0.0379110729 -2.852313 4.882255e-03
## overall      0.005015641 0.0008508381  5.894941 1.983611e-08
```

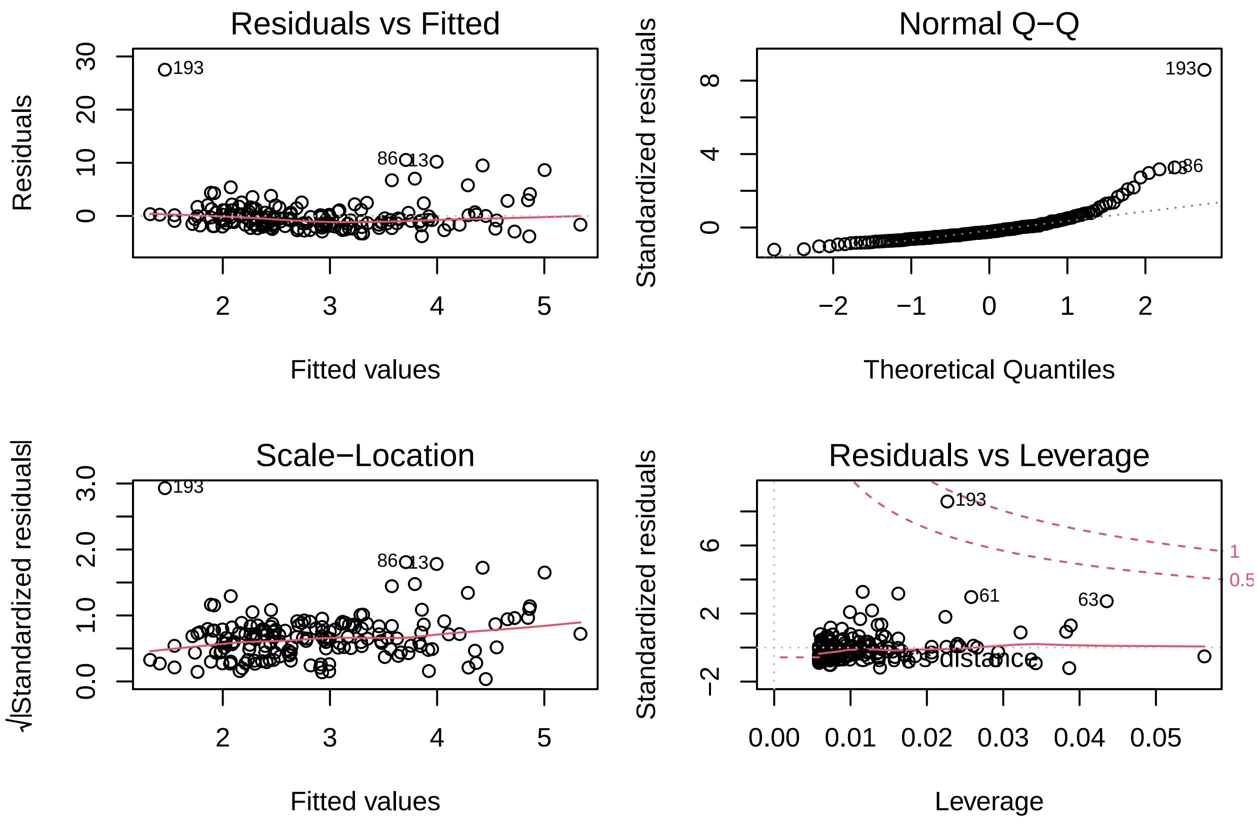
```r
par(mfrow=c(2,2),mar=c(5,4,2,1))
plot(lm(deathpc ~ overall, data = sixmonth_data))
```



```r
# case-fatality ratio vs overall GHSI
summary(lm(cfratio ~ overall, data = sixmonth_data))$coefficients
```

```
##                Estimate Std. Error  t value     Pr(>|t|)
## (Intercept) 0.35619156 0.78762500 0.452235 0.6516796540
## overall     0.05965234 0.01767667 3.374637 0.0009167863
```

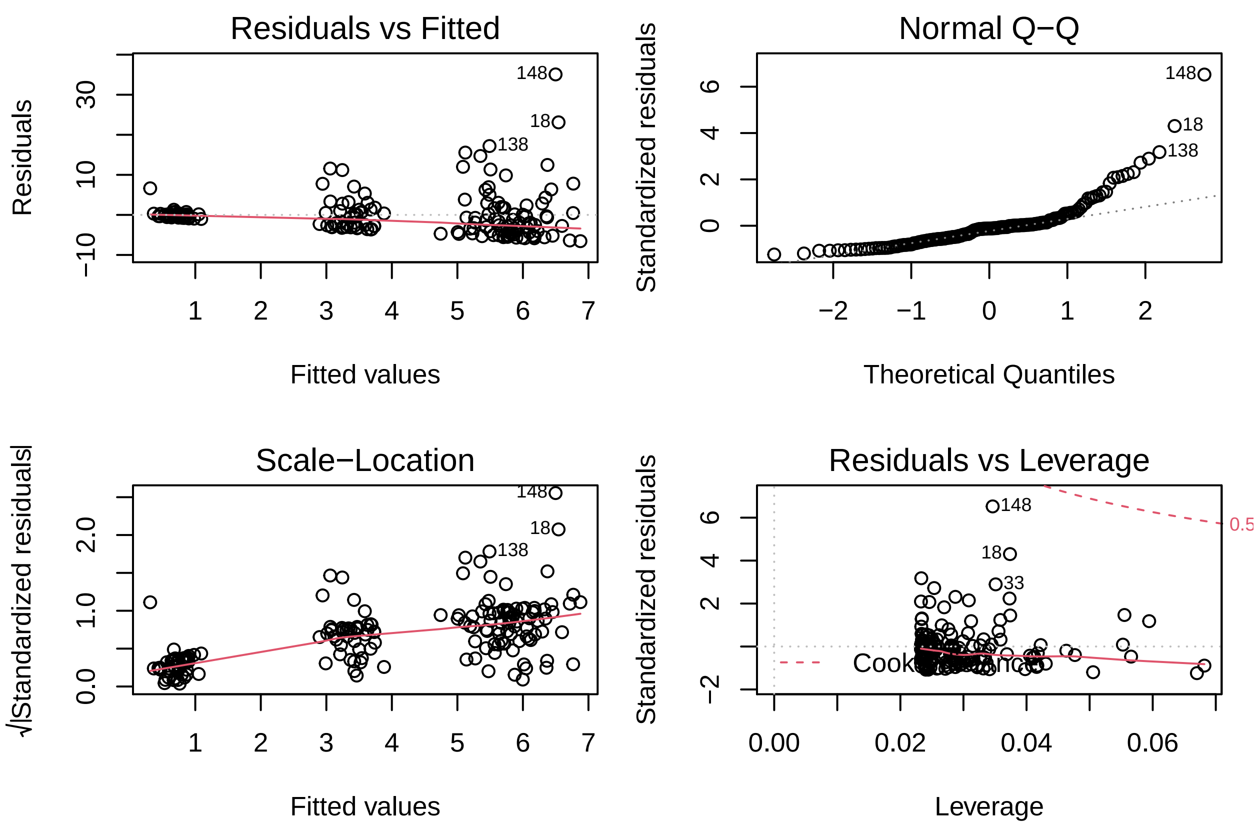
```r
par(mfrow=c(2,2),mar=c(5,4,2,1))
plot(lm(cfratio ~ overall, data = sixmonth_data))
```



```r
# cases per-capita vs overall GHSI confounding on GDP per-capita quartiles
summary(lm(casepc ~ overall + factor(gdp_pc_quartile), data = sixmonth_data))$coefficients
```

```
##                             Estimate Std. Error   t value     Pr(>|t|)
## (Intercept)               1.55776251 1.50561734  1.034634 3.023449e-01
## overall                  -0.02527216 0.03787453 -0.667260 5.055326e-01
## factor(gdp_pc_quartile)2  2.76984317 1.19249030  2.322739 2.140674e-02
## factor(gdp_pc_quartile)3  5.03675100 1.23358525  4.083018 6.897863e-05
## factor(gdp_pc_quartile)4  5.98175241 1.47560607  4.053760 7.731597e-05
```

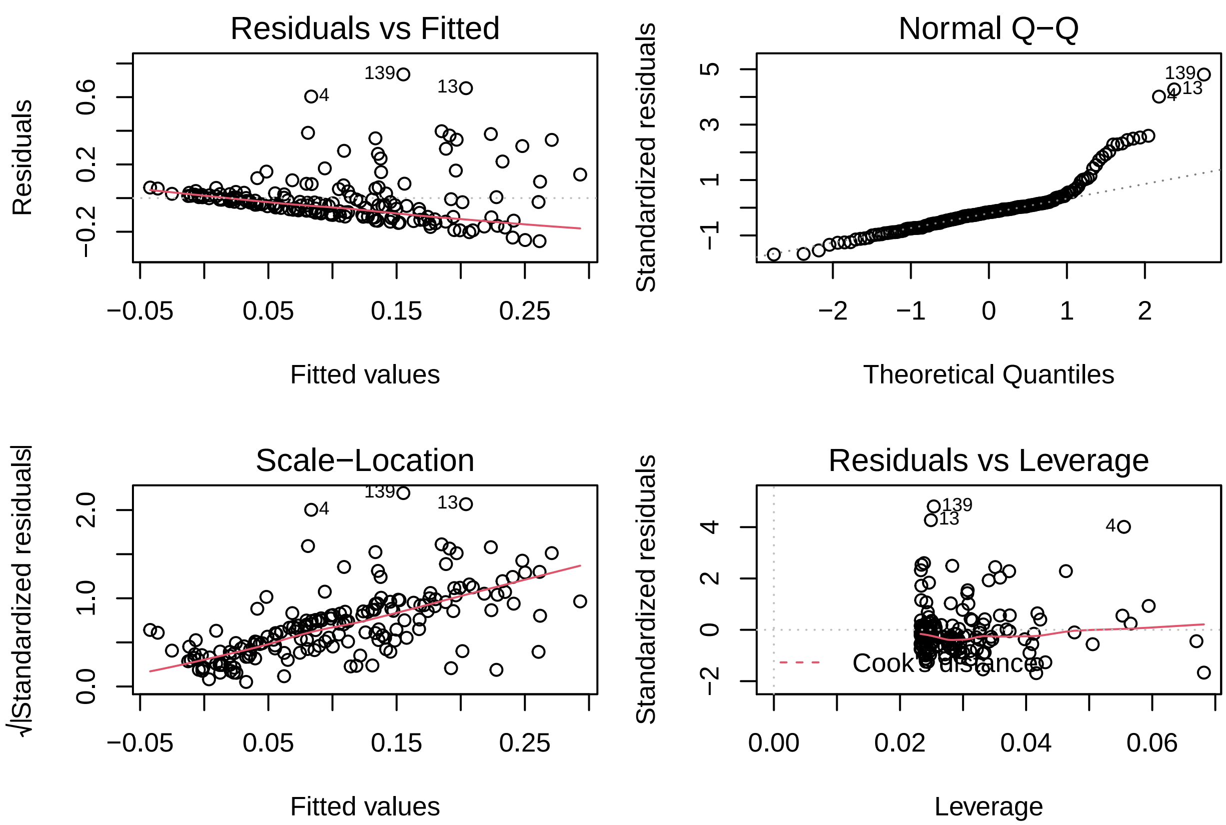
```r
par(mfrow=c(2,2),mar=c(5,4,2,1))
plot(lm(casepc ~ overall + factor(gdp_pc_quartile), data = sixmonth_data))
```



```r
# deaths per-capita vs overall GHSI confounding on GDP per-capita quartiles
summary(lm(deathpc ~ overall + factor(gdp_pc_quartile), data = sixmonth_data))$coefficients
```

```
##                              Estimate  Std. Error   t value     Pr(>|t|)
## (Intercept)              -0.115369404 0.042609873 -2.707574 0.0074872119
## overall                   0.003956551 0.001071872  3.691254 0.0003023344
## factor(gdp_pc_quartile)2  0.054665989 0.033748191  1.619820 0.1071691733
## factor(gdp_pc_quartile)3  0.075954095 0.034911202  2.175637 0.0309963860
## factor(gdp_pc_quartile)4  0.078097574 0.041760536  1.870129 0.0632266298
```

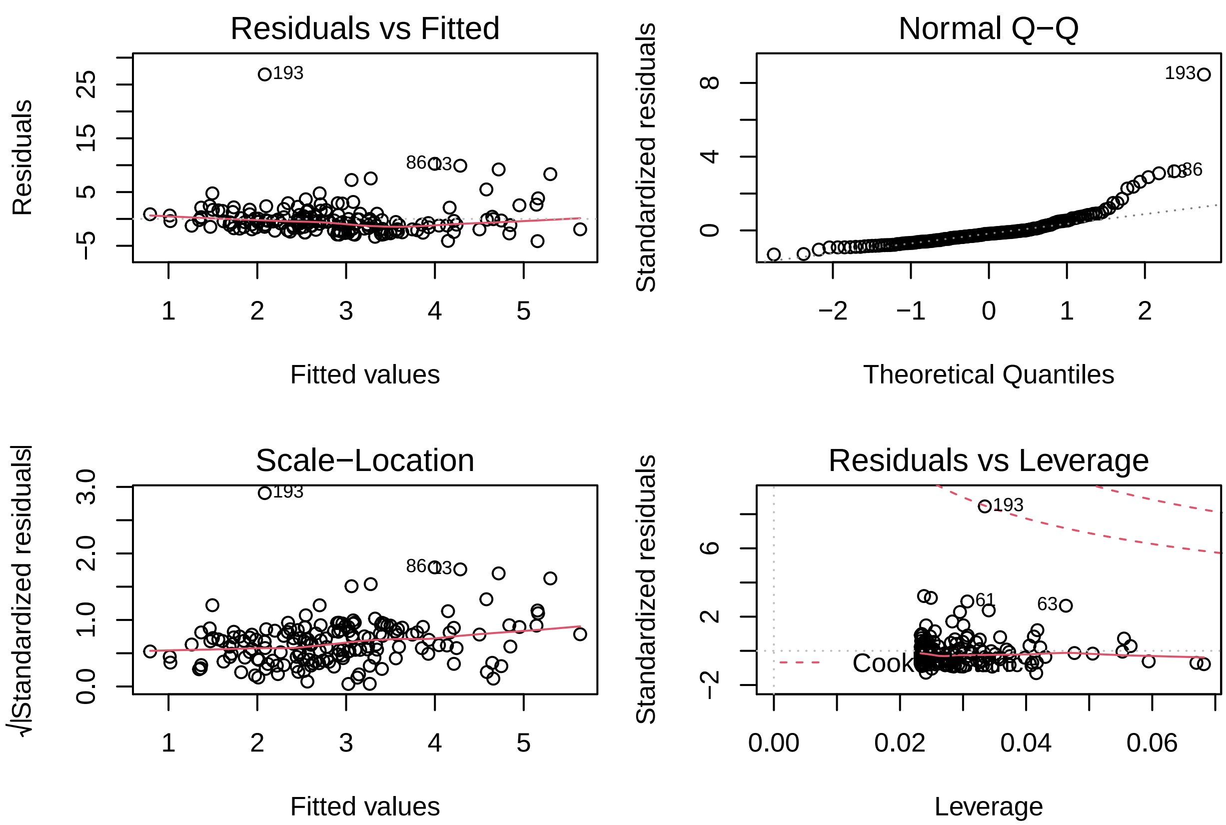
```r
par(mfrow=c(2,2),mar=c(5,4,2,1))
plot(lm(deathpc ~ overall + factor(gdp_pc_quartile), data = sixmonth_data))
```



```r
# case-fatality ratio vs overall GHSI confounding on GDP per-capita quartiles
summary(lm(cfratio ~ overall + factor(gdp_pc_quartile), data = sixmonth_data))$coefficients
```

```
##                              Estimate Std. Error   t value    Pr(>|t|)
## (Intercept)                0.97370161 0.88994222  1.094118 0.275488399
## overall                    0.06000638 0.02238692  2.680421 0.008094517
## factor(gdp_pc_quartile)2 -1.02194884 0.70485869 -1.449863 0.148983314
## factor(gdp_pc_quartile)3 -1.15292749 0.72914914 -1.581196 0.115736788
## factor(gdp_pc_quartile)4 -0.34845304 0.87220312 -0.399509 0.690031701
```

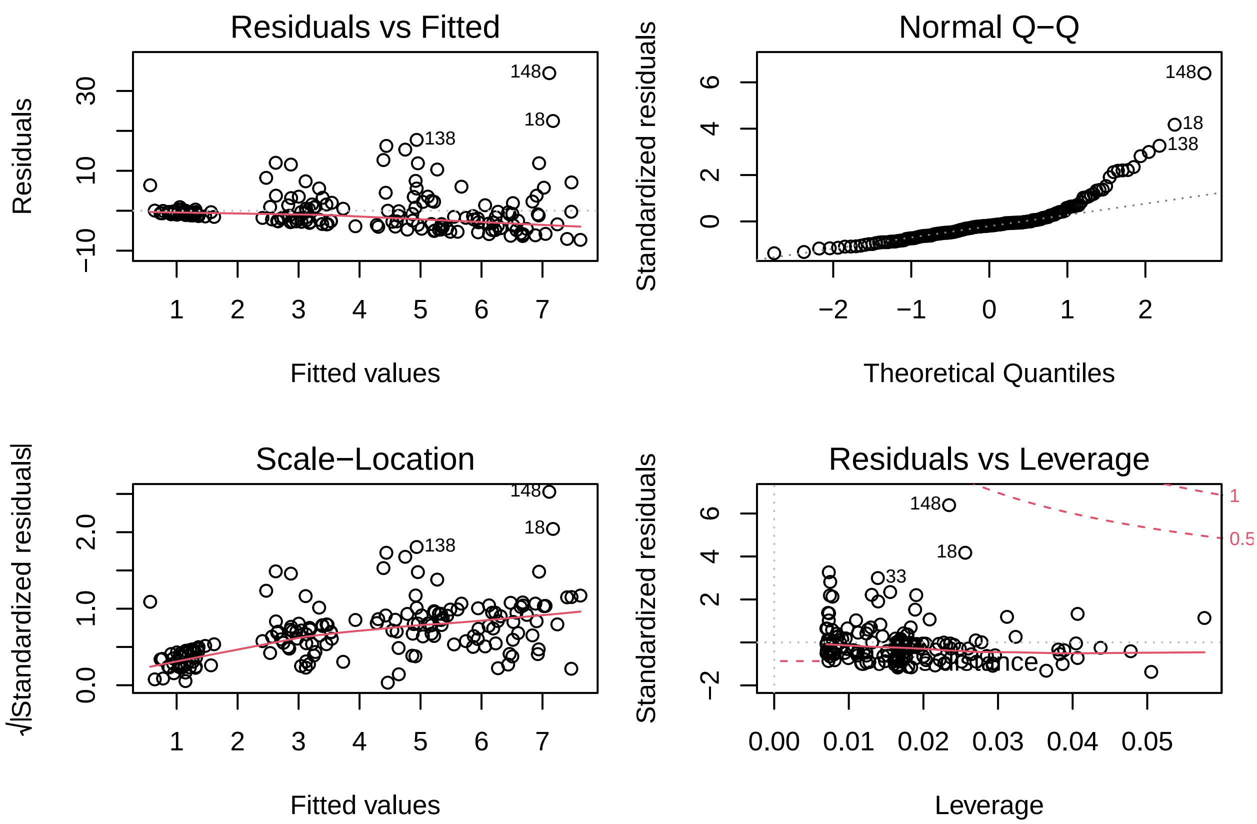
```r
par(mfrow=c(2,2),mar=c(5,4,2,1))
plot(lm(cfratio ~ overall + factor(gdp_pc_quartile), data = sixmonth_data))
```



```r
# cases per-capita vs overall GHSI confounding on GDP per-capita
summary(lm(casepc ~ overall + gdp_pc_quartile, data = sixmonth_data))$coefficients
```

```
##                     Estimate Std. Error    t value     Pr(>|t|)
## (Intercept)       0.15499708 1.34705187  0.1150639 9.085319e-01
## overall          -0.03405252 0.03687764 -0.9233920 3.571273e-01
## gdp_pc_quartile   2.08988585 0.46359870  4.5079632 1.222963e-05
```

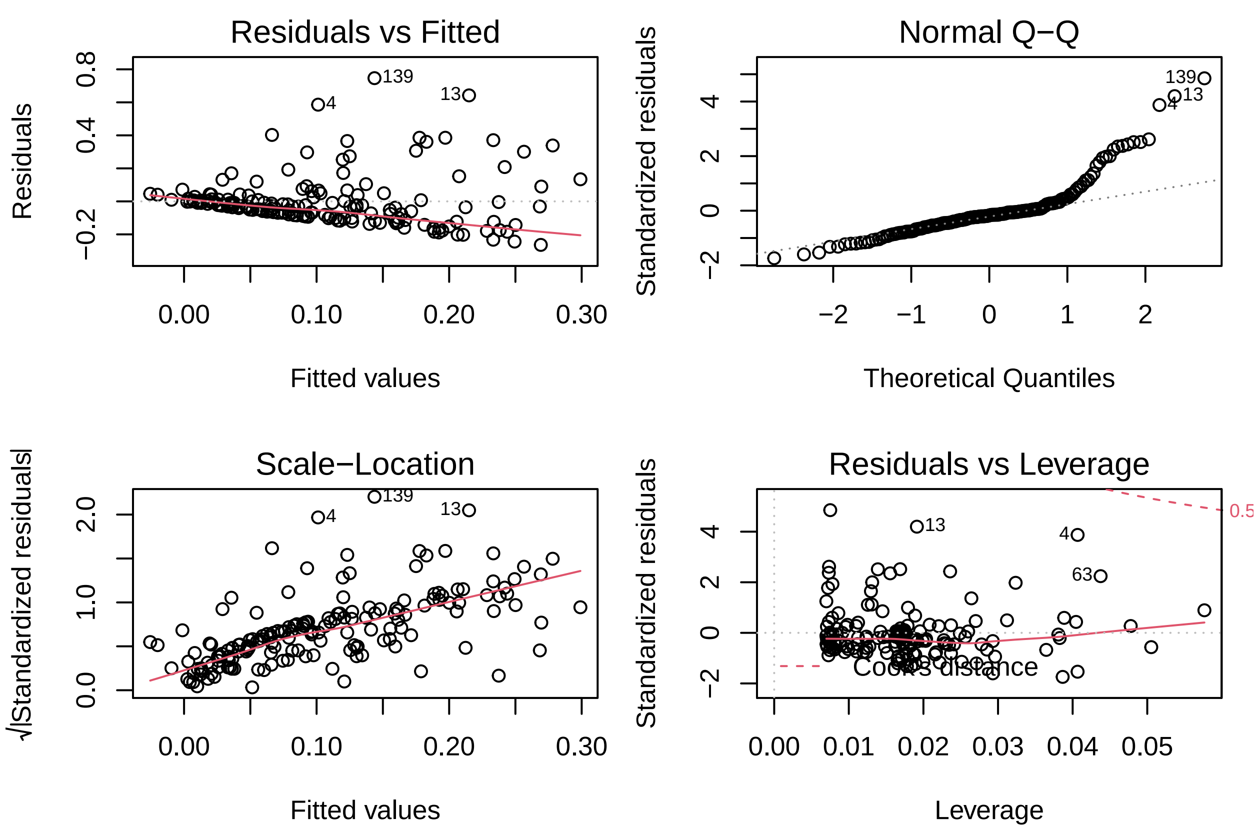
```r
par(mfrow=c(2,2),mar=c(5,4,2,1))
plot(lm(casepc ~ overall + gdp_pc_quartile, data = sixmonth_data))
```



```r
# deaths per-capita vs overall GHSI confounding on GDP per-capita
summary(lm(deathpc ~ overall + gdp_pc_quartile, data = sixmonth_data))$coefficients
```

```
##                     Estimate  Std. Error   t value     Pr(>|t|)
## (Intercept)     -0.121937928 0.038125125 -3.198361 0.001652065
## overall          0.003734211 0.001043735  3.577740 0.000453059
## gdp_pc_quartile  0.027295753 0.013121067  2.080300 0.039015890
```

```r
par(mfrow=c(2,2),mar=c(5,4,2,1))
plot(lm(deathpc ~ overall + gdp_pc_quartile, data = sixmonth_data))
```



```r
# case-fatality ratio per-capita vs overall GHSI confounding on GDP per-capita
summary(lm(cfratio ~ overall + gdp_pc_quartile, data = sixmonth_data))$coefficients
```

```
##                    Estimate Std. Error    t value    Pr(>|t|)
## (Intercept)      0.44796082 0.80117689  0.5591285 0.576818617
## overall          0.06817149 0.02193346  3.1081043 0.002211686
## gdp_pc_quartile -0.18146664 0.27573145 -0.6581282 0.511356584
```

```r
par(mfrow=c(2,2),mar=c(5,4,2,1))
plot(lm(cfratio ~ overall + gdp_pc_quartile, data = sixmonth_data))
```