lab01

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2024-09-13

Load EPI dataset

```
EPI_data <- read.csv("./epi2024results06022024.csv")
```

```
summary(EPI_data$EPI.new) # stats
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   24.50   38.25   45.50   46.84   53.10   75.30
```

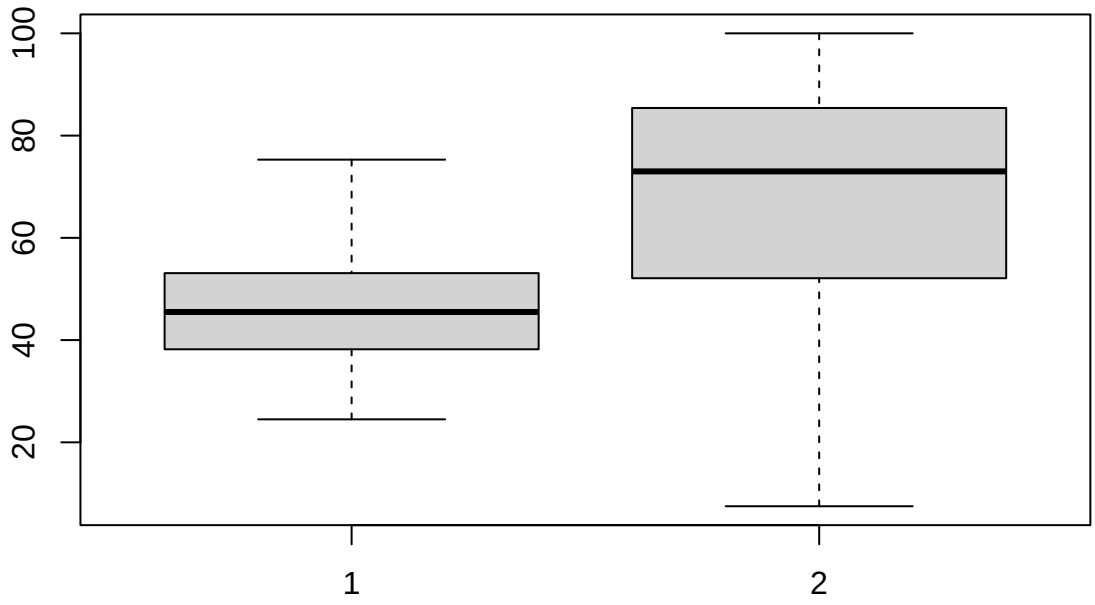
```
fivenum(EPI_data$EPI.new,na.rm=TRUE)
```

```
## [1] 24.5 38.2 45.5 53.1 75.3
```

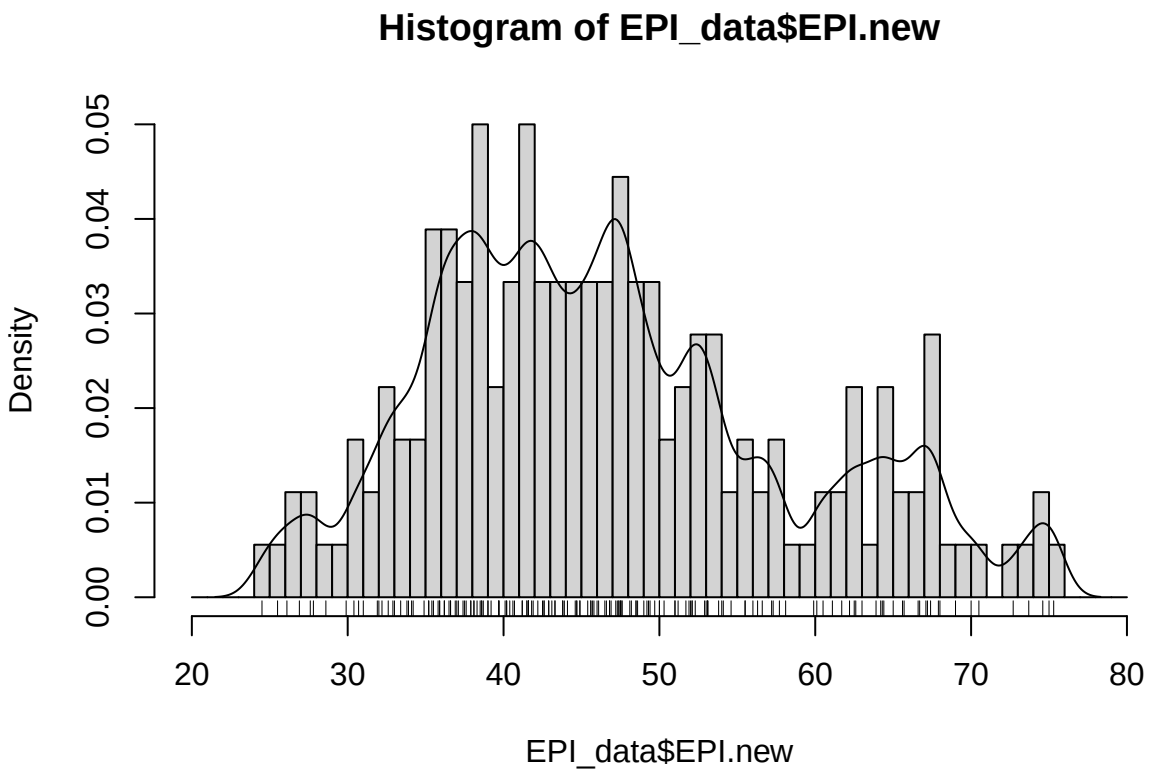
```
stem(EPI_data$EPI.new) # stem and leaf plot
```

```
##
##   The decimal point is 1 digit(s) to the right of the |
##
##   2 |
##   2 | 5667889
##   3 | 001122233334444
##   3 | 55556666667777777888888899999999
##   4 | 00000001111222222233333334444
##   4 | 55555566666677777777778888889999999
##   5 | 000011122222233333444
##   5 | 5666677788
##   6 | 0011223334444
##   6 | 56677777889
##   7 | 0134
##   7 | 555
```

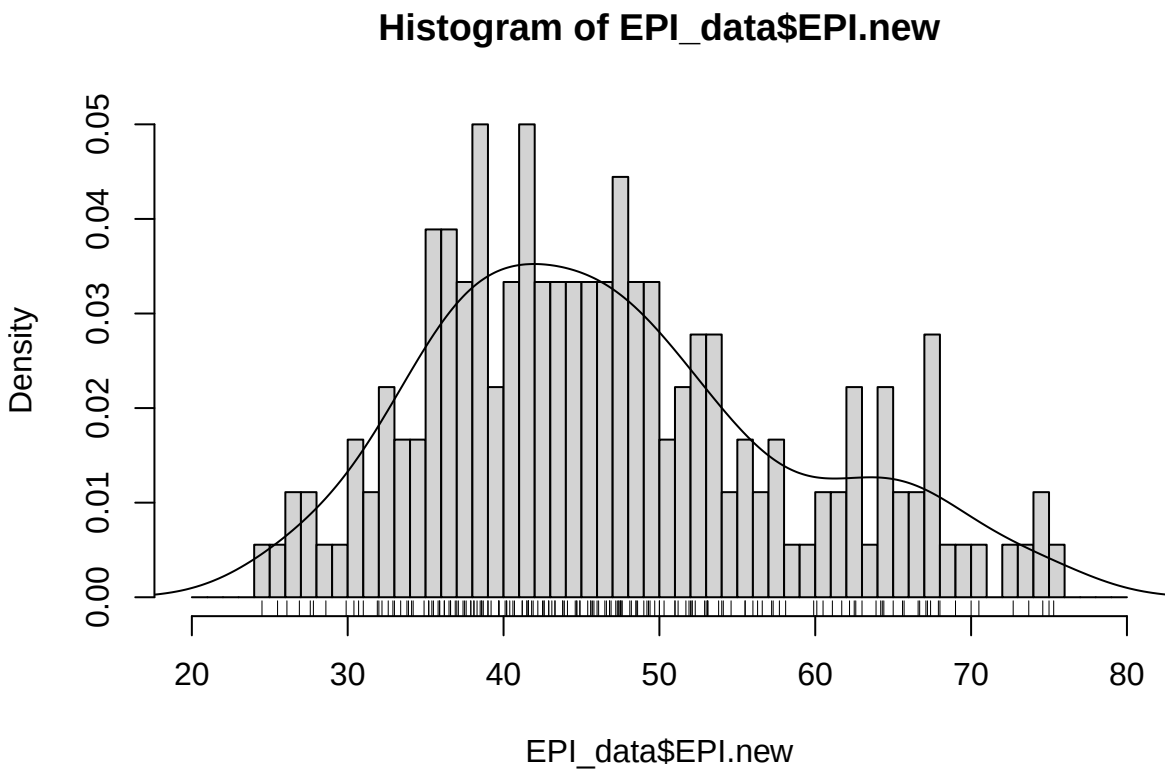
```
boxplot(EPI_data$EPI.new, EPI_data$APO.new)
```




```
hist(EPI_data$EPI.new, seq(20., 80., 1.0), prob=TRUE)
lines (density(EPI_data$EPI.new,na.rm=TRUE,bw=1.))
rug(EPI_data$EPI.new)
```

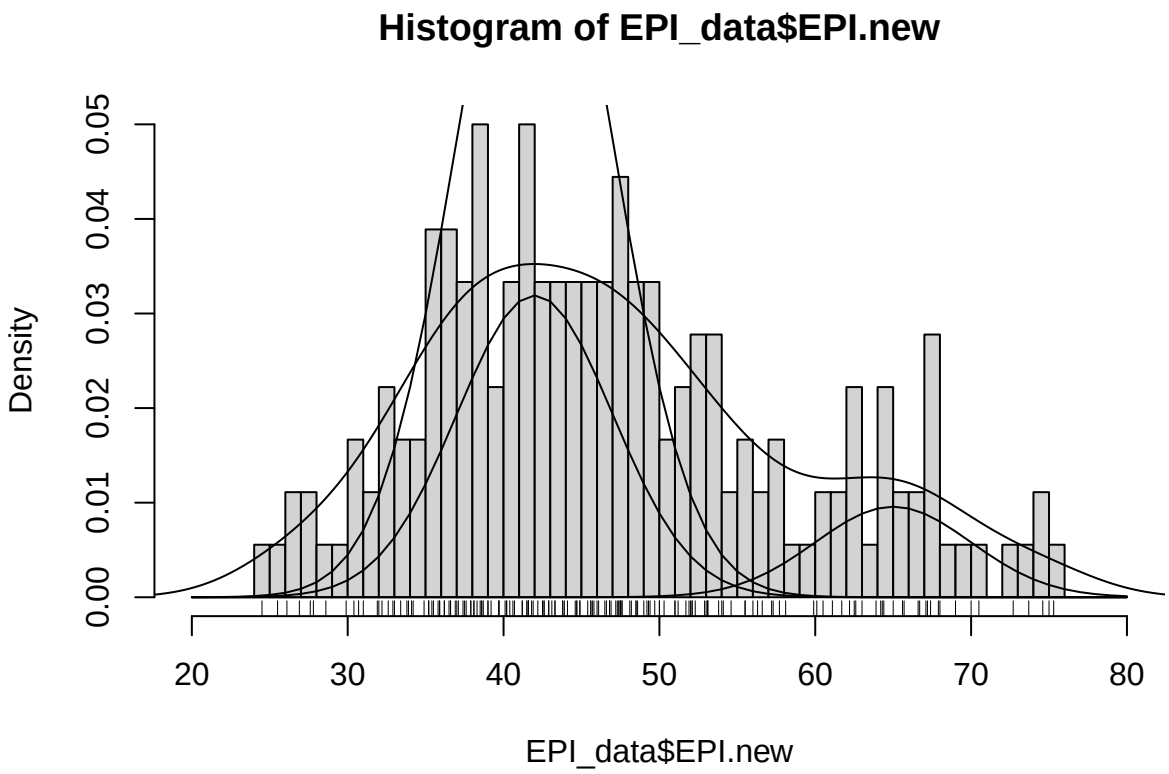



```
hist(EPI_data$EPI.new, seq(20., 80., 1.0), prob=TRUE)
lines (density(EPI_data$EPI.new,na.rm=TRUE,bw='SJ'))
rug(EPI_data$EPI.new)
```

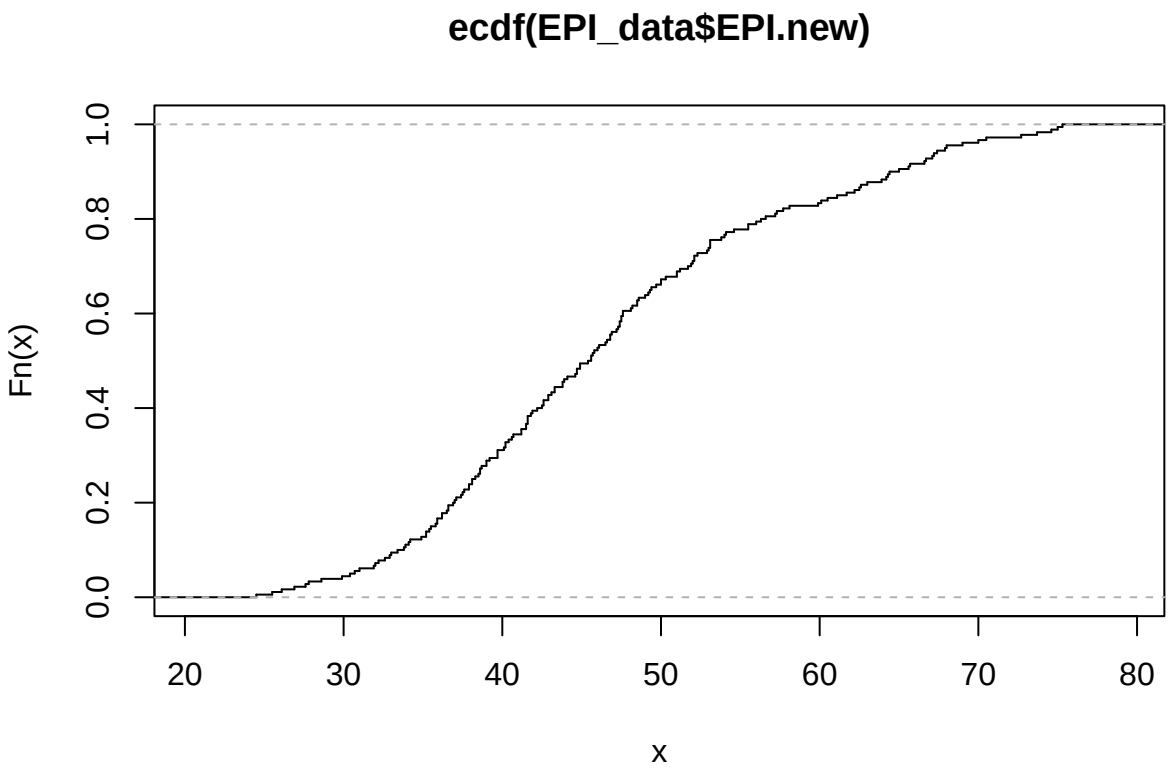



```
hist(EPI_data$EPI.new, seq(20., 80., 1.0), prob=TRUE)
lines (density(EPI_data$EPI.new,na.rm=TRUE,bw='SJ'))
rug(EPI_data$EPI.new)

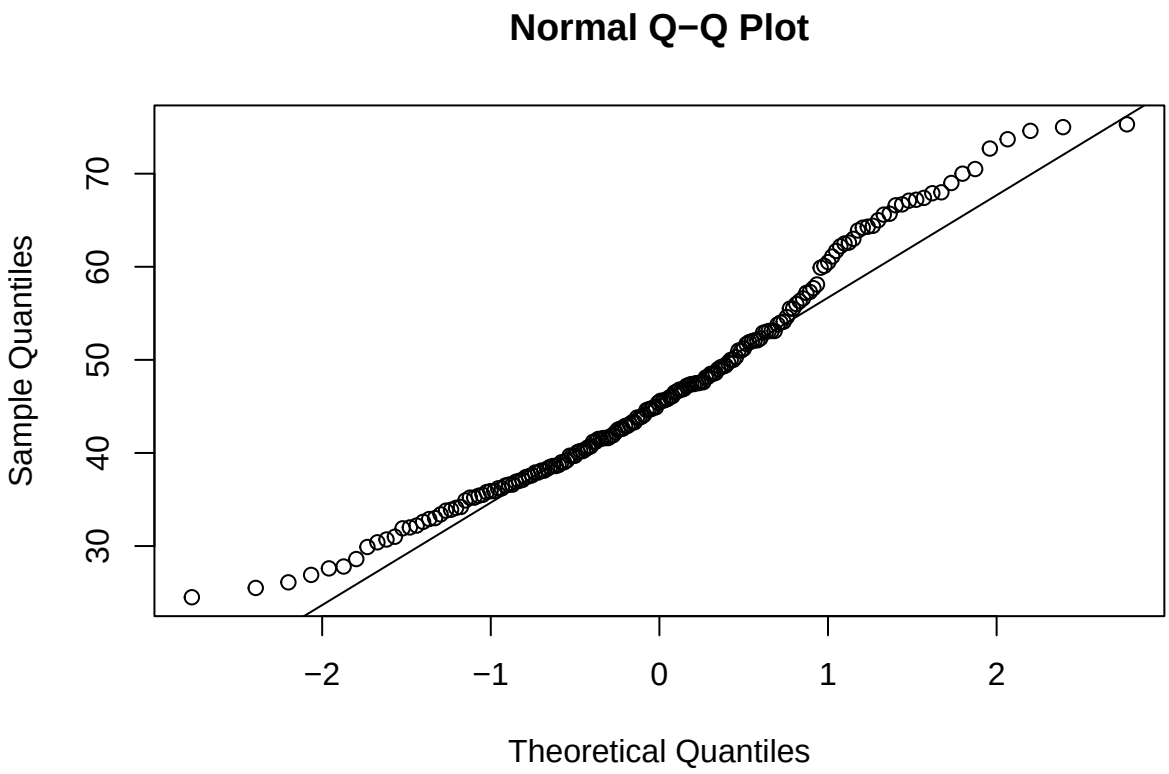
x<-seq(20,80,1)
q<- dnorm(x,mean=42, sd=5,log=FALSE)
lines(x,q)
lines(x,.4*q)
q<-dnorm(x,mean=65, sd=5,log=FALSE)
lines(x,.12*q)
```



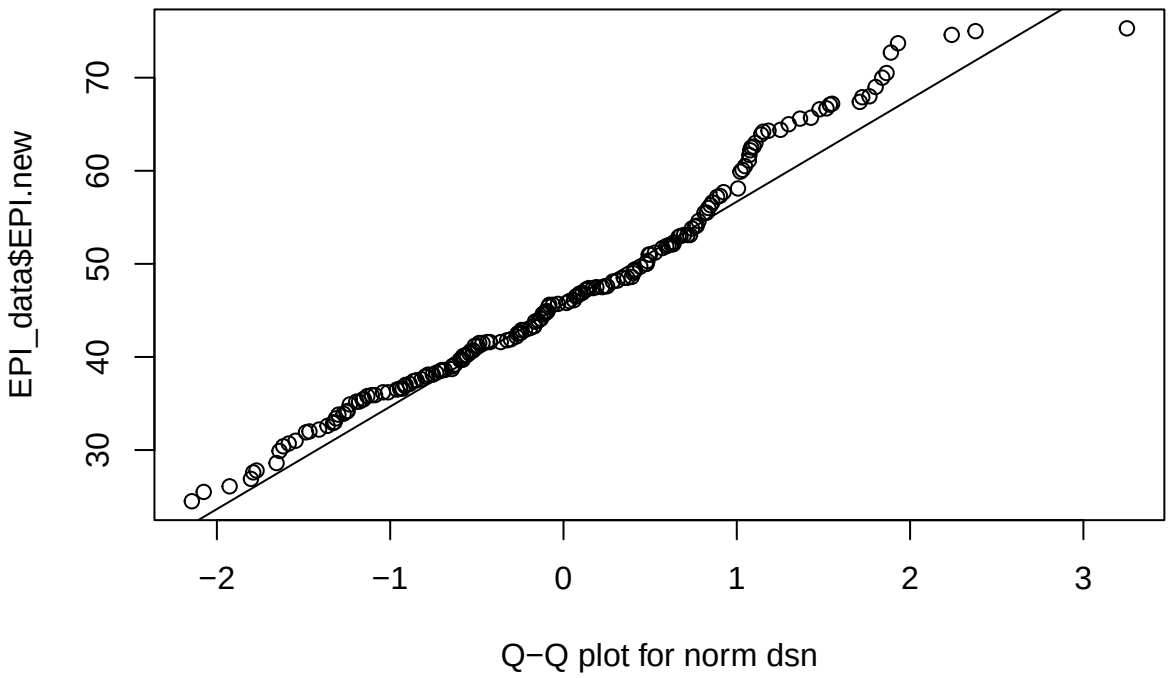

```
plot(ecdf(EPI_data$EPI.new), do.points=FALSE, verticals=TRUE)
```



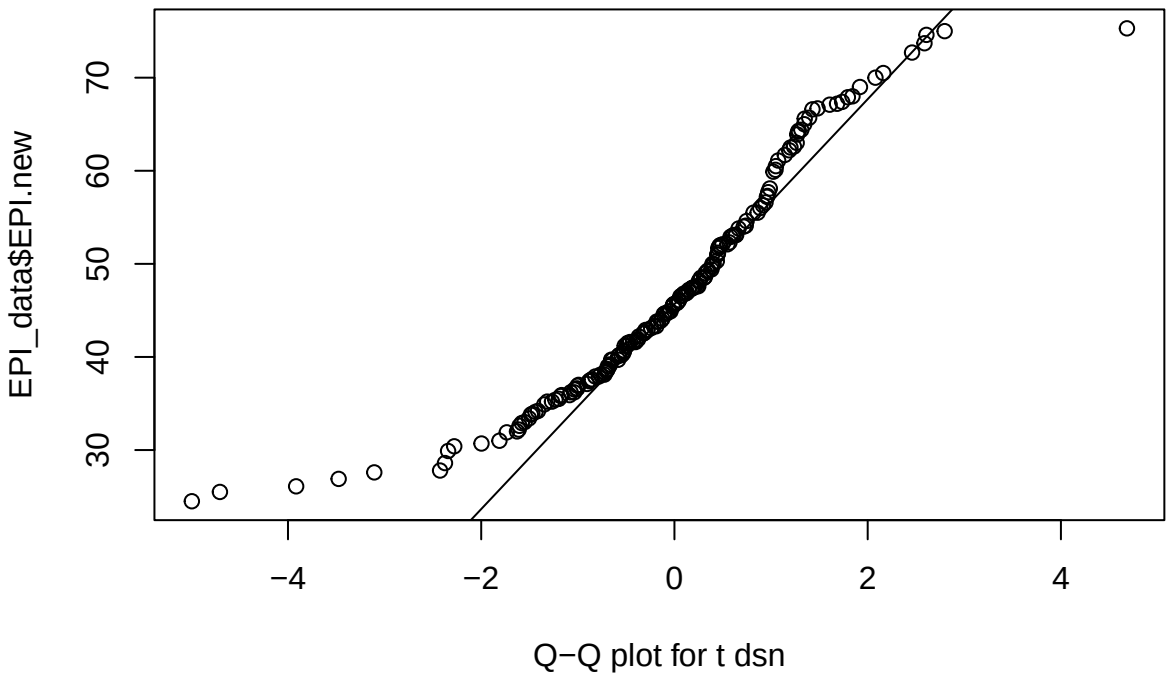

```
qqnorm(EPI_data$EPI.new); qqline(EPI_data$EPI.new)
```




```
qqplot(rnorm(250), EPI_data$EPI.new, xlab = "Q-Q plot for norm dsn")
qqline(EPI_data$EPI.new)
```




```
qqplot(rt(250, df = 5), EPI_data$EPI.new, xlab = "Q-Q plot for t dsn")
qqline(EPI_data$EPI.new)
```



API variable:

```
summary(EPI_data$WRS.new) # stats
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    7.60   15.20   38.70   42.16   67.25   92.40
```

```
fivenum(EPI_data$WRS.new,na.rm=TRUE)
```

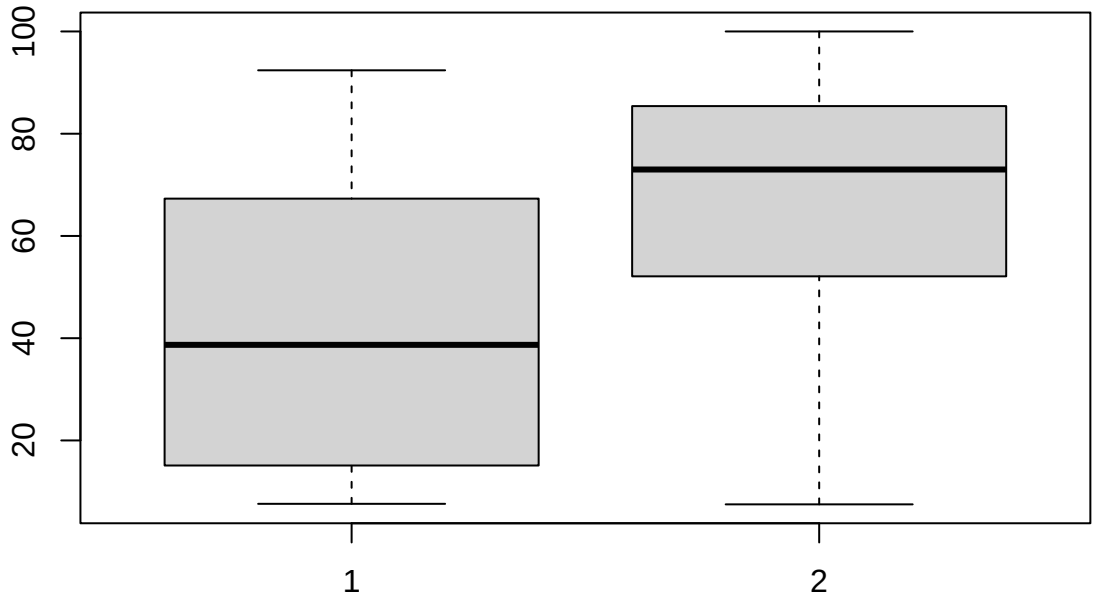
```
## [1]  7.6 15.1 38.7 67.3 92.4
```

```
stem(EPI_data$WRS.new) # stem and leaf plot
```

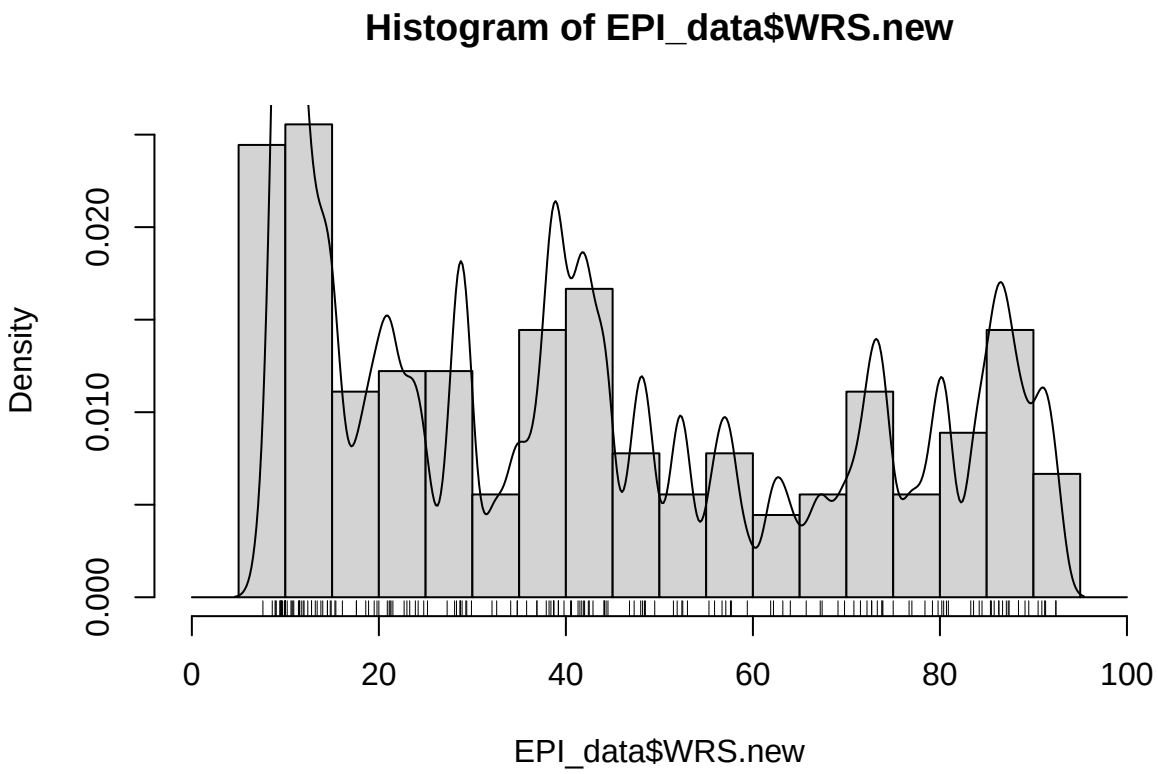
```
##
##   The decimal point is 1 digit(s) to the right of the |
##
##   0 | 899999
##   1 | 00000000000000000111112222222333344
##   1 | 55555568899
##   2 | 0001111233344
##   2 | 55788999999
##   3 | 0234
##   3 | 55677888999999
##   4 | 011122222334444
##   4 | 5778889
```

```
##   5 | 022233
##   5 | 5677889
##   6 | 2234
##   6 | 6779
##   7 | 0122333444
##   7 | 57789
##   8 | 00011344
##   8 | 5566667777889
##   9 | 0111122
```

```
boxplot(EPI_data$WRS.new, EPI_data$APO.new)
```




```
hist(EPI_data$WRS.new, seq(0., 100., 5.0), prob=TRUE)
lines (density(EPI_data$WRS.new,na.rm=TRUE,bw=1.))
rug(EPI_data$WRS.new)
```




```
hist(EPI_data$WRS.new, seq(0., 100., 5.0), prob=TRUE)
lines (density(EPI_data$WRS.new,na.rm=TRUE,bw='SJ'))
rug(EPI_data$WRS.new)
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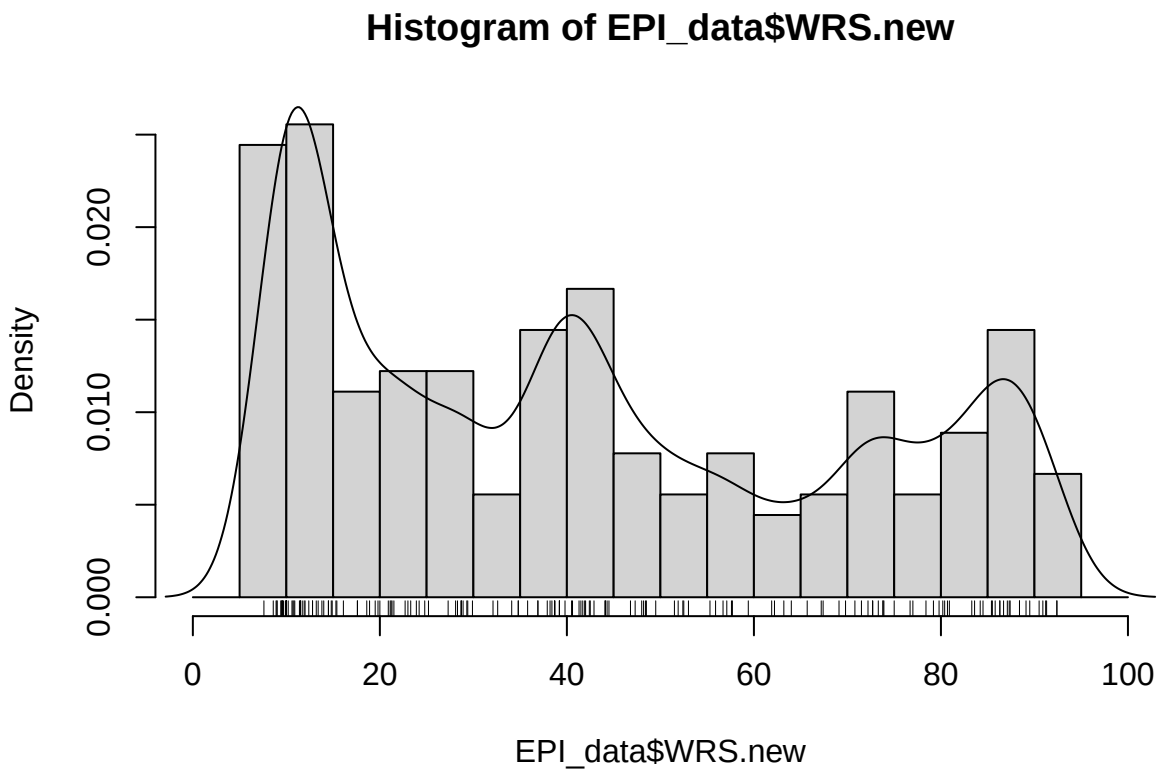


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lines (density(EPI_data$WRS.new,na.rm=TRUE,bw='SJ'))
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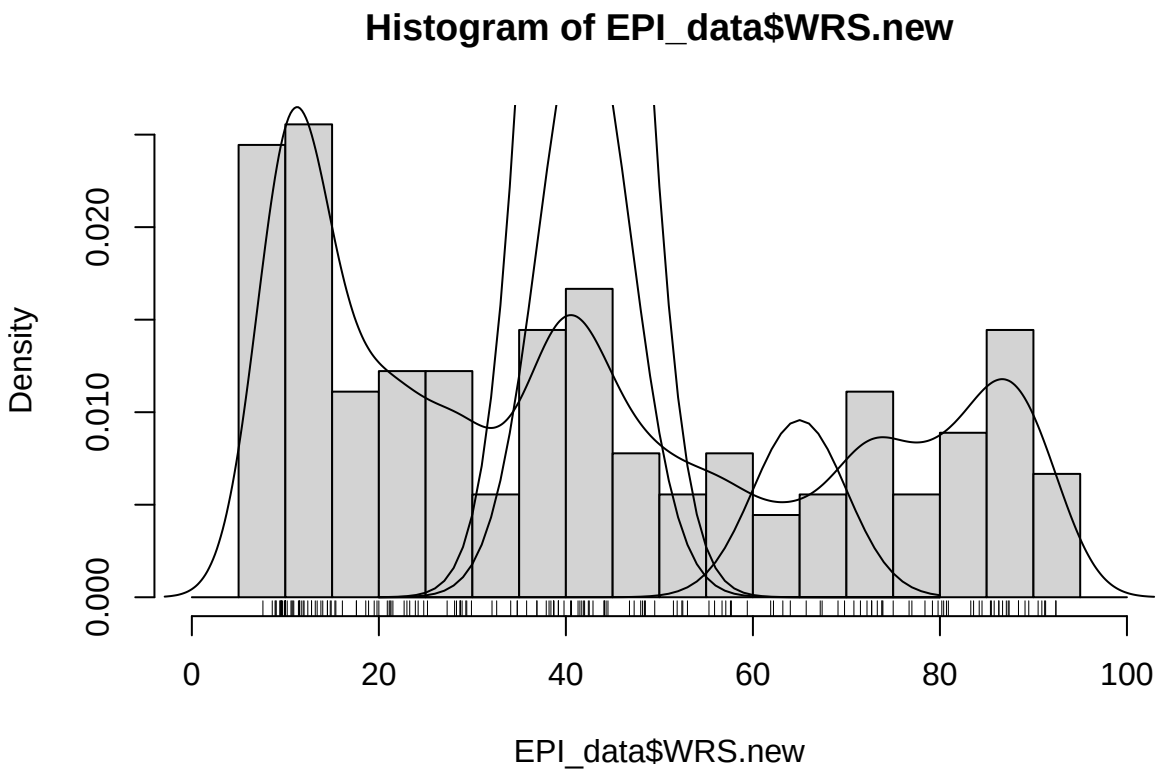
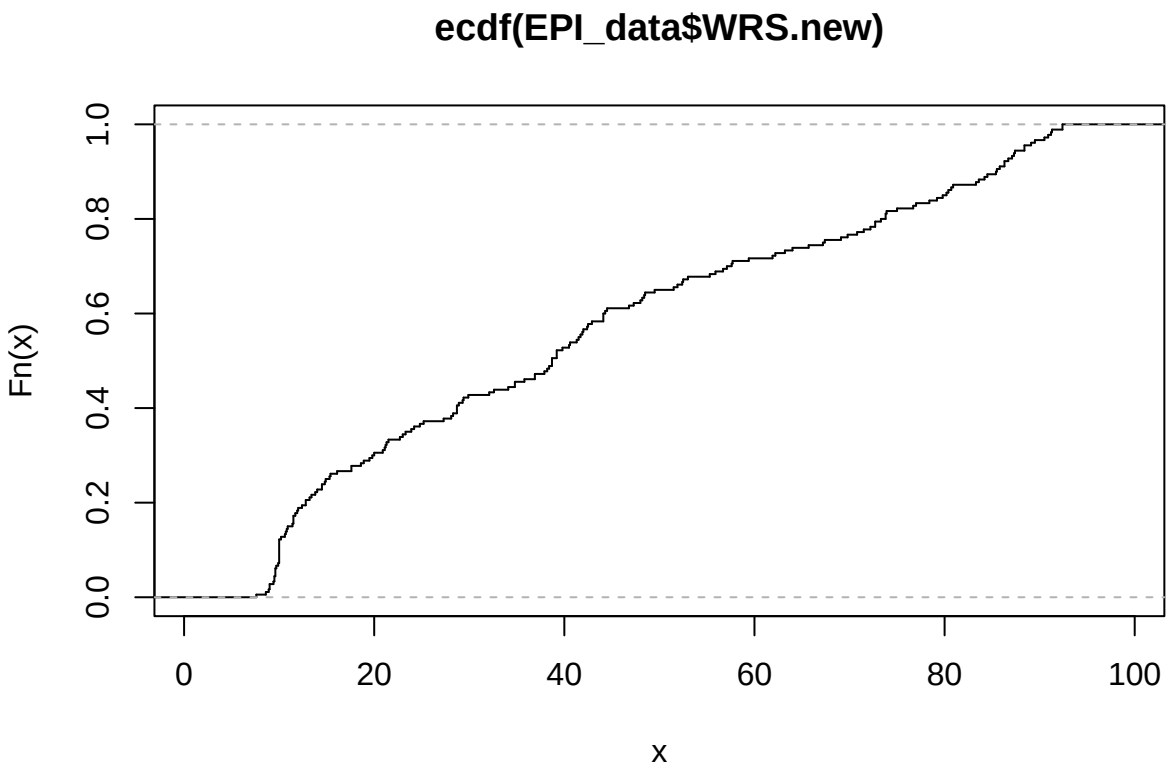
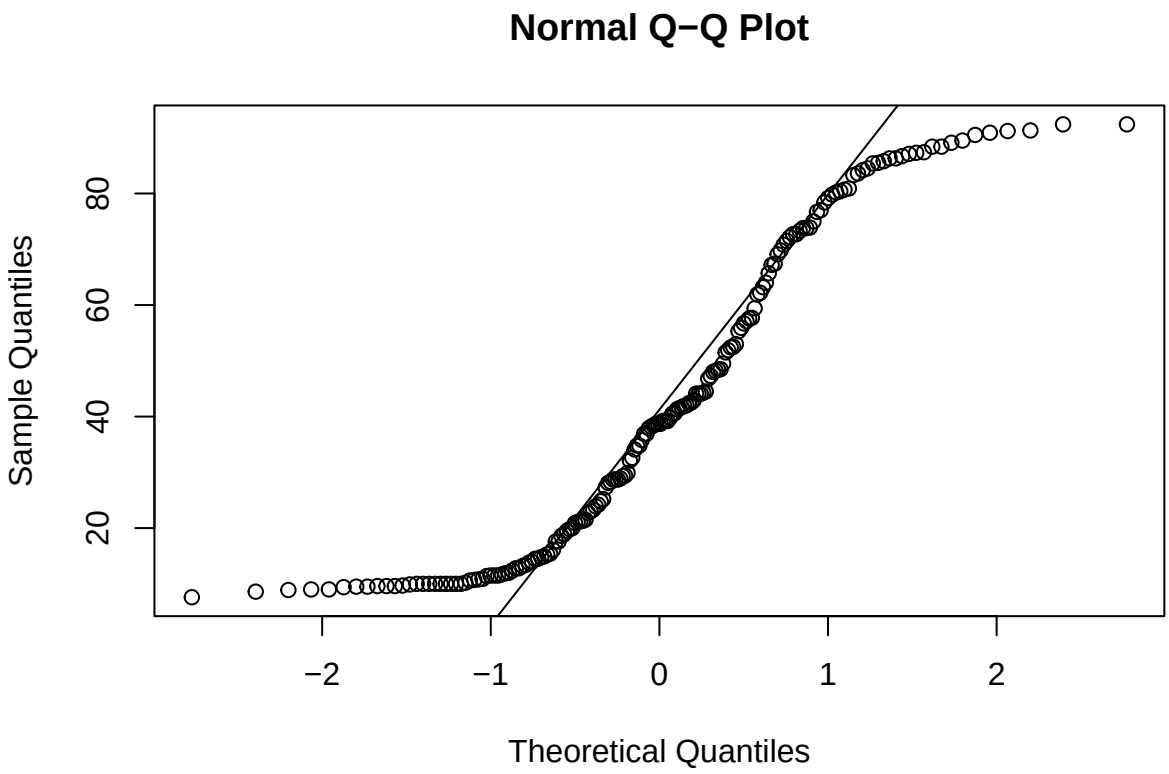
```




```
plot(ecdf(EPI_data$WRS.new), do.points=FALSE, verticals=TRUE)
```




```
qqnorm(EPI_data$WRS.new); qqline(EPI_data$WRS.new)
```

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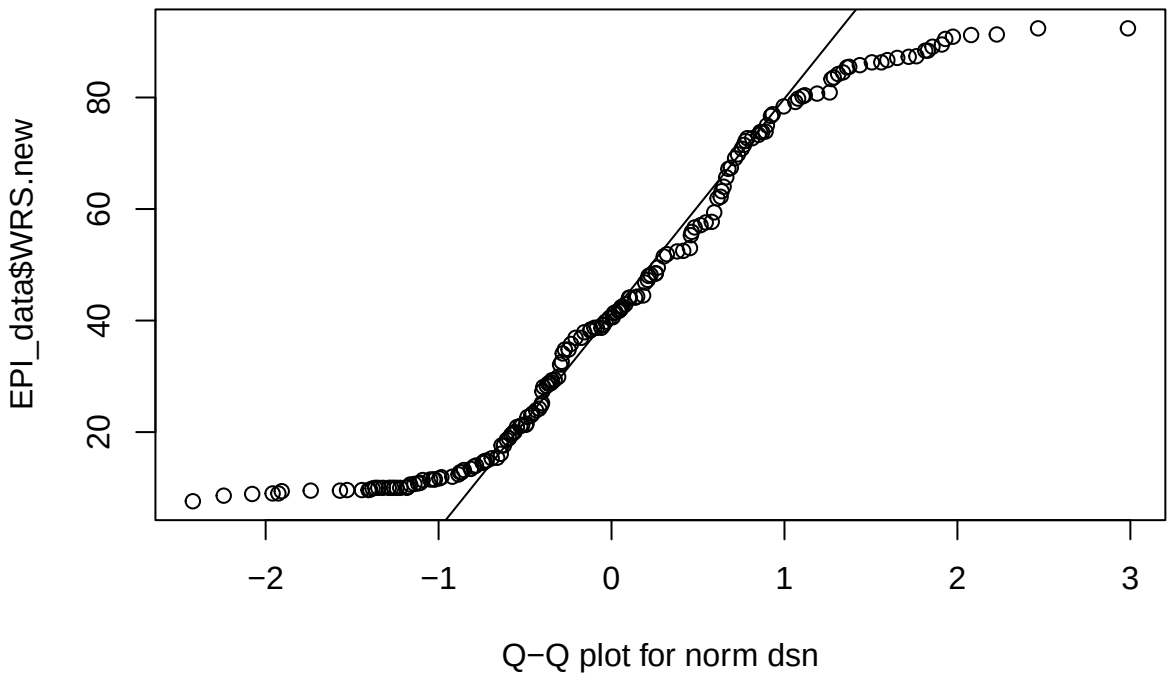
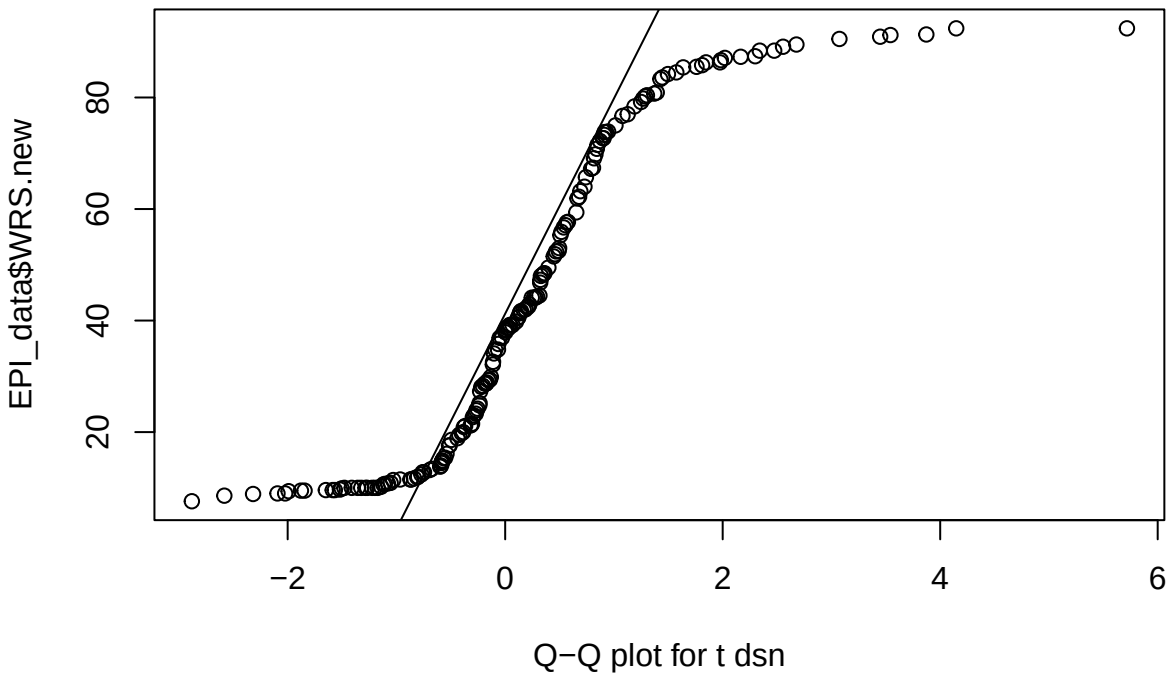
qqplot(rnorm(250), EPI_data$WRS.new, xlab = "Q-Q plot for norm dsn")
qqline(EPI_data$WRS.new)
```




```
qqplot(rt(250, df = 5), EPI_data$WRS.new, xlab = "Q-Q plot for t dsn")
qqline(EPI_data$WRS.new)
```


EPI_data$WRS.new
20
40
60
80
−2
0
2
4
6
Q−Q plot for t dsn