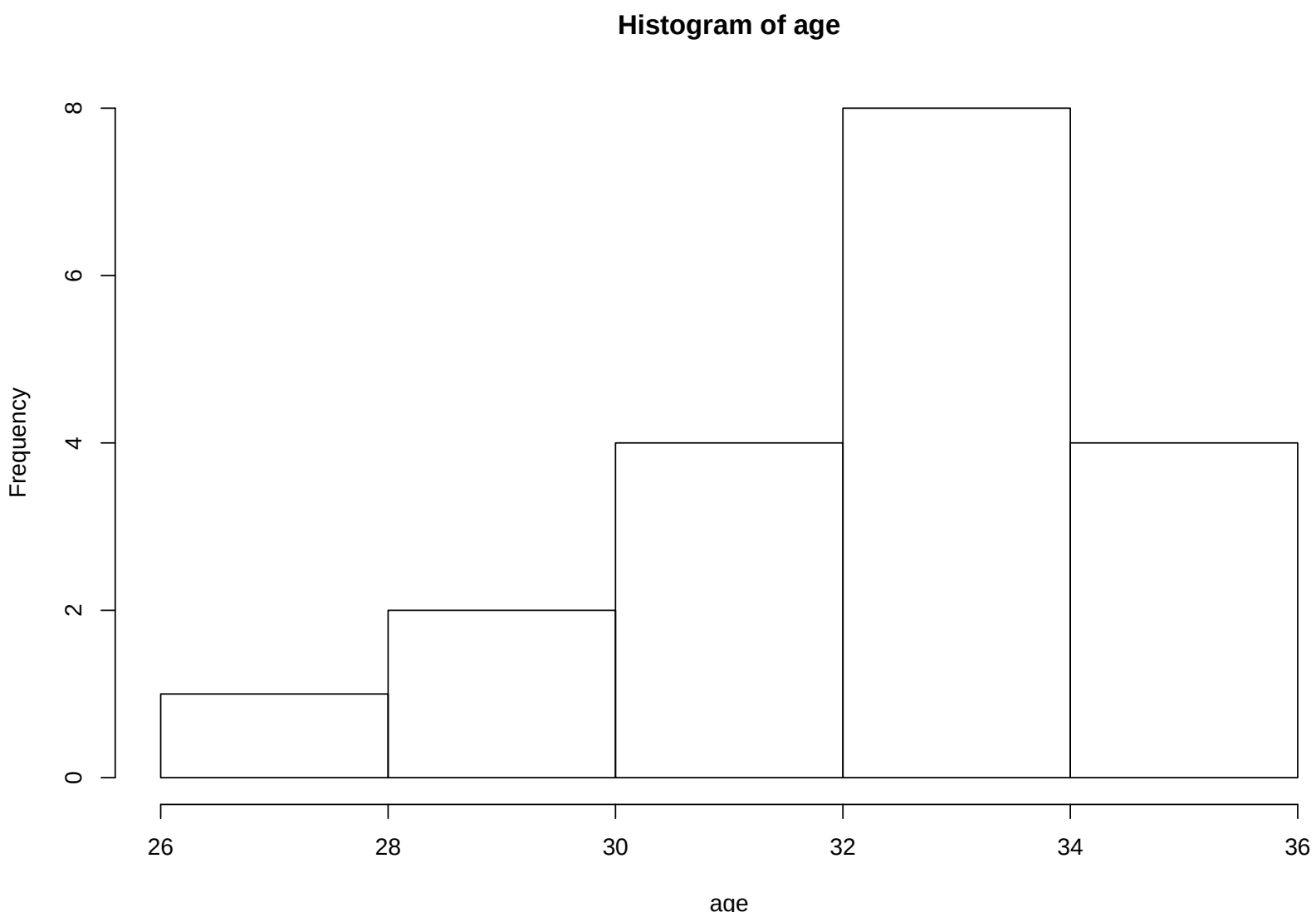
Descriptive statistics

Guess my age

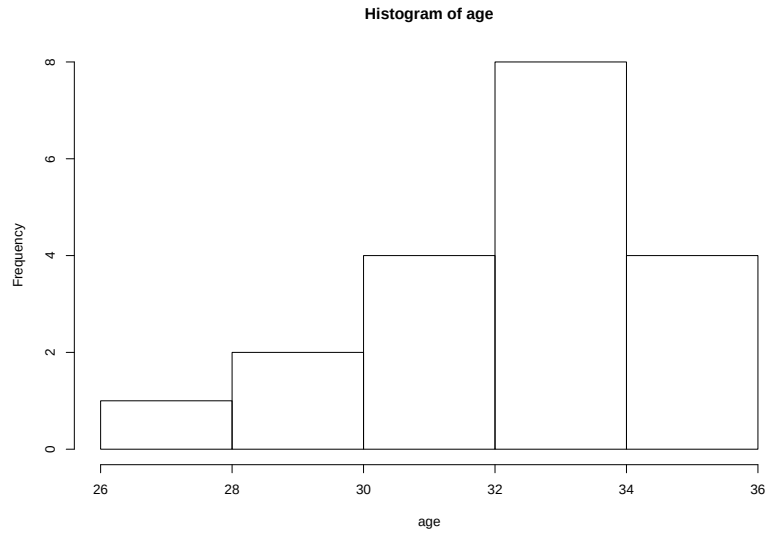
Graph your estimates

```
hist(age)
```



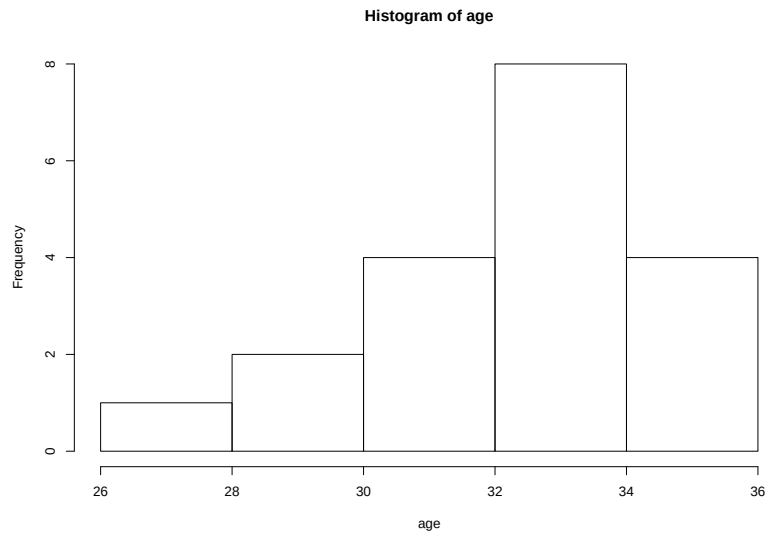
Summarise that distribution

- **Central tendency / location**



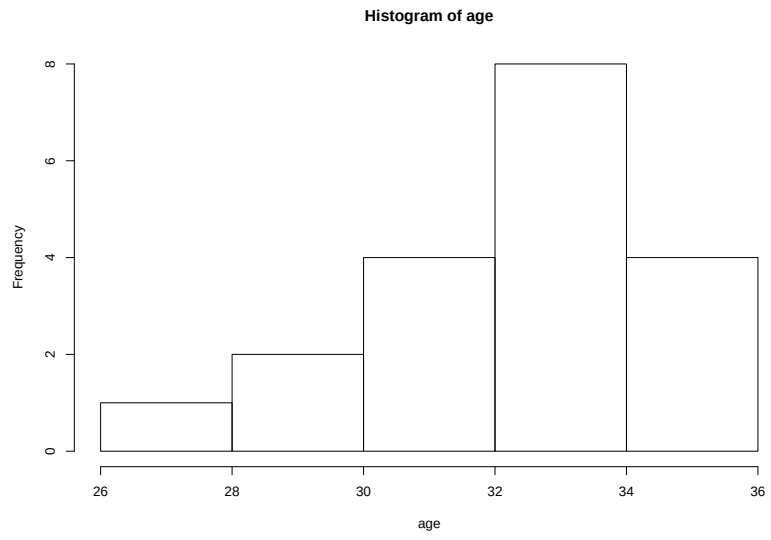
Summarise that distribution

- **Central tendency / location**
  - mean



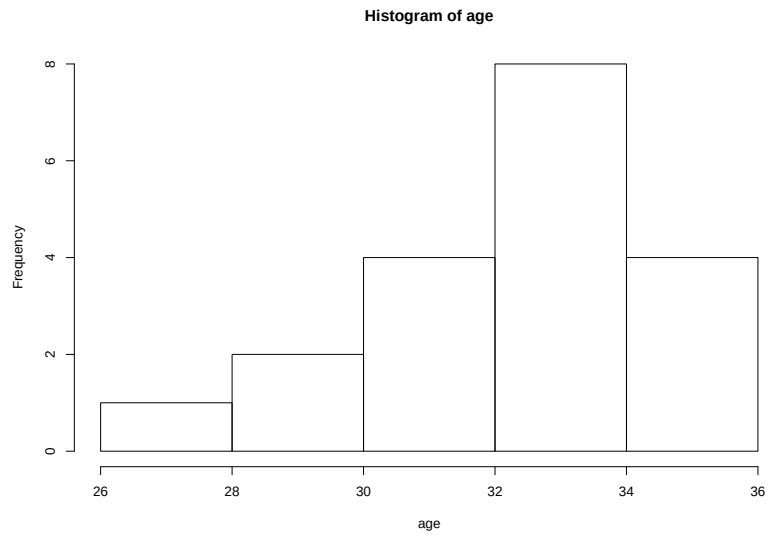
Summarise that distribution

- **Central tendency / location**
  - mean
  - median



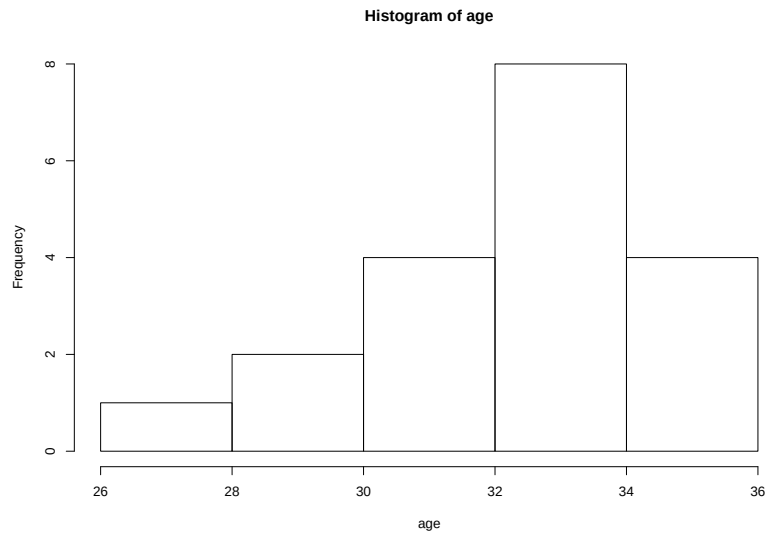
Summarise that distribution

- **Central tendency / location**
  - mean
  - median
  - mode



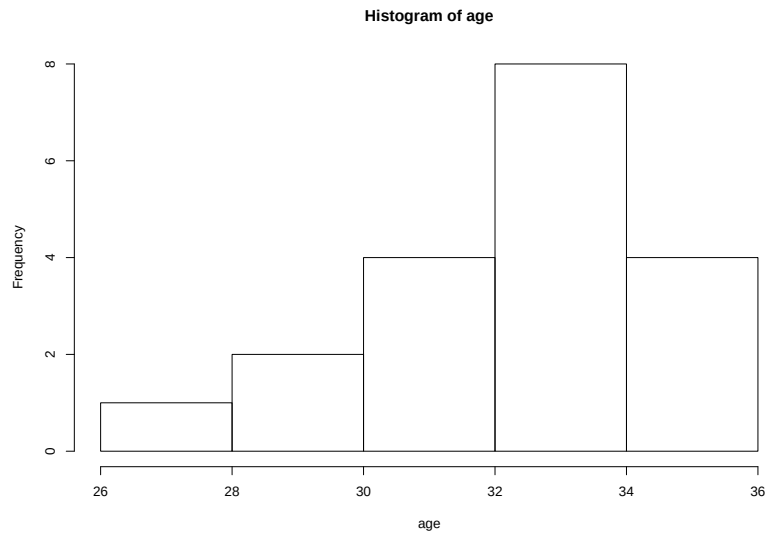
Summarise that distribution

- **Central tendency / location**
  - mean
  - median
  - mode
- **Variation / Spread**



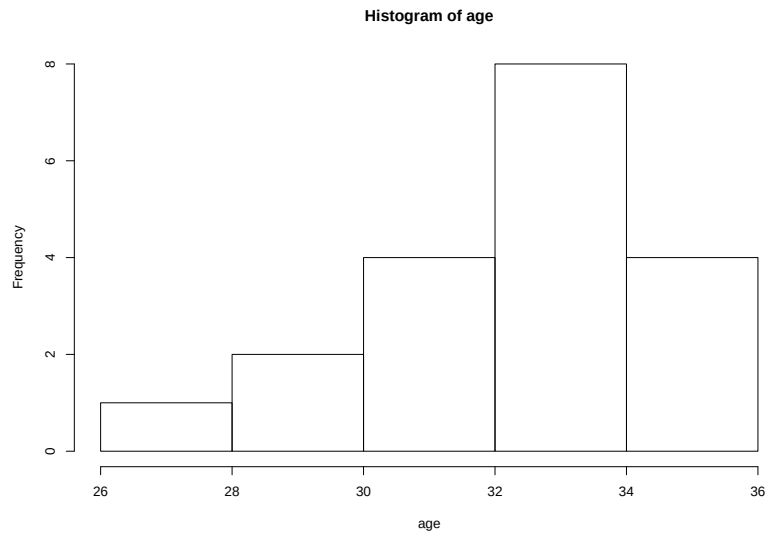
Summarise that distribution

- **Central tendency / location**
  - mean
  - median
  - mode
- **Variation / Spread**
  - min, max, range



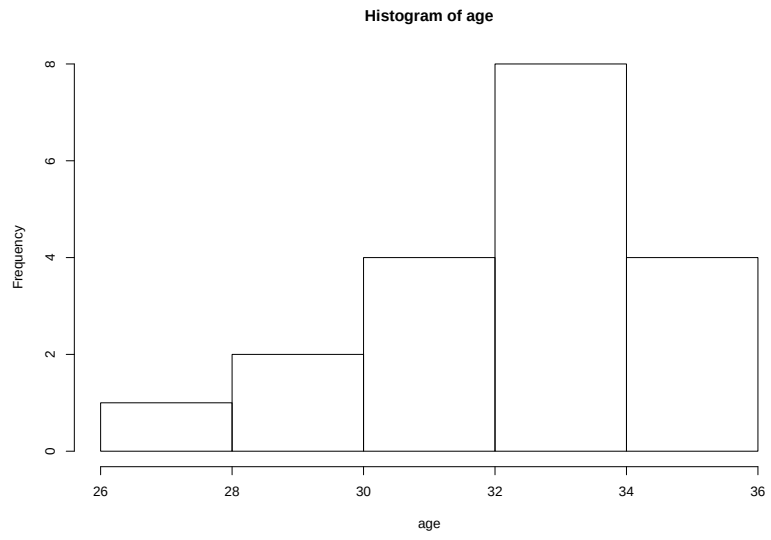
Summarise that distribution

- **Central tendency / location**
  - mean
  - median
  - mode
- **Variation / Spread**
  - min, max, range
  - quantiles



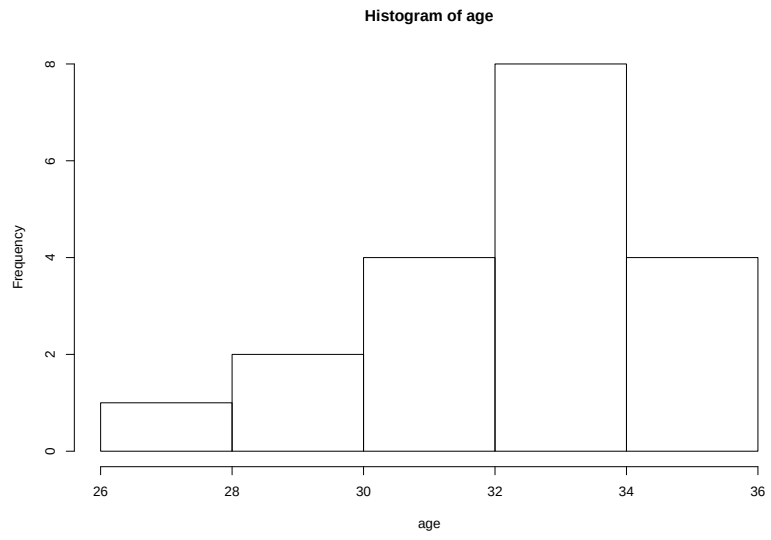
Summarise that distribution

- **Central tendency / location**
  - mean
  - median
  - mode
- **Variation / Spread**
  - min, max, range
  - quantiles
  - standard deviation



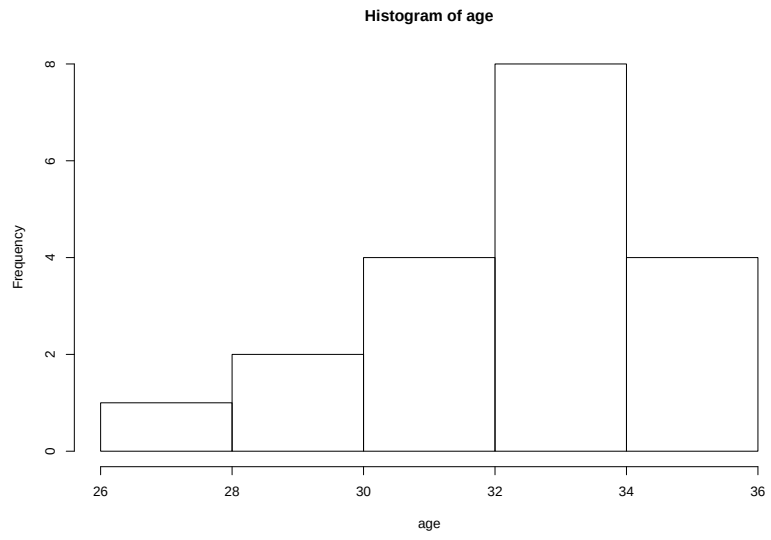
Summarise that distribution

- **Central tendency / location**
  - mean
  - median
  - mode
- **Variation / Spread**
  - min, max, range
  - quantiles
  - standard deviation
  - standard error



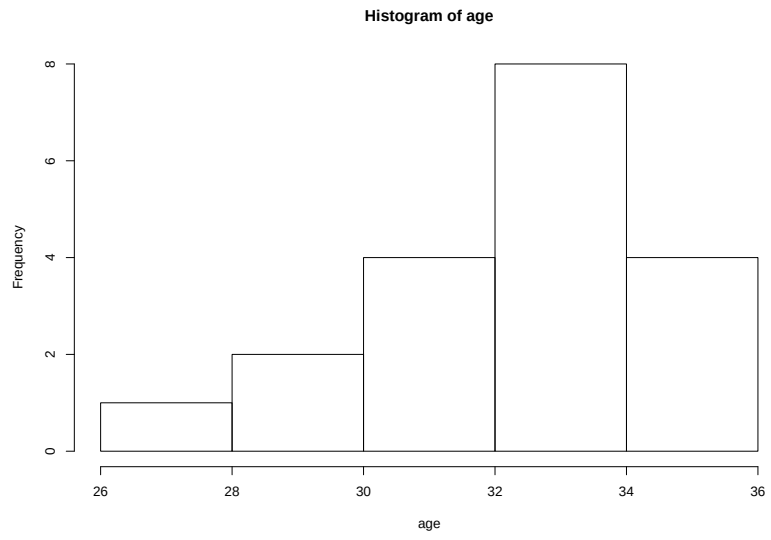
Summarise that distribution

- **Central tendency / location**
  - mean
  - median
  - mode
- **Variation / Spread**
  - min, max, range
  - quantiles
  - standard deviation
  - standard error
  - coefficient of variation

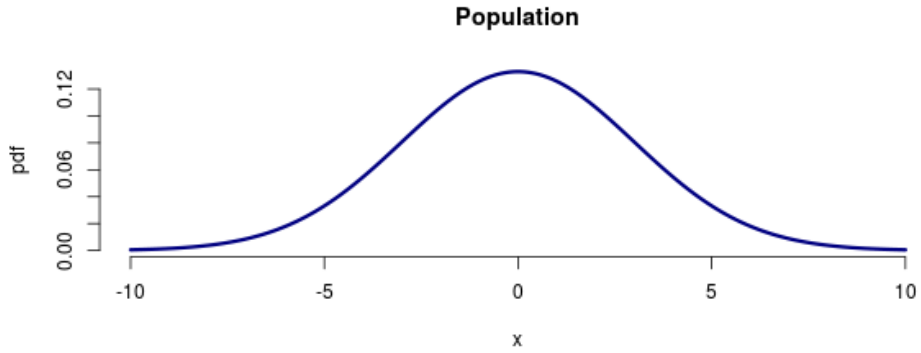


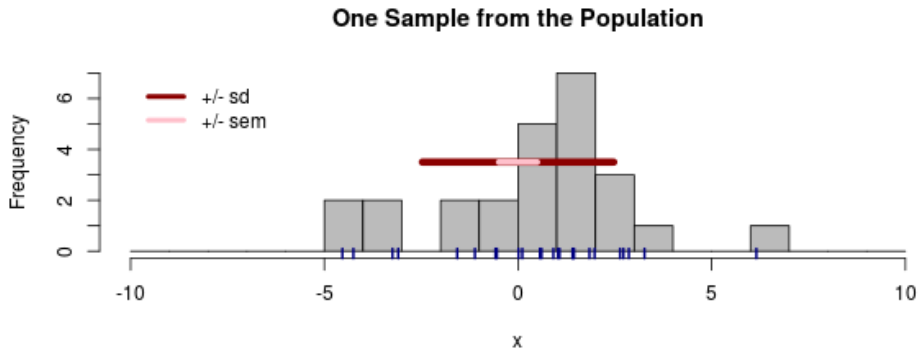
Summarise that distribution

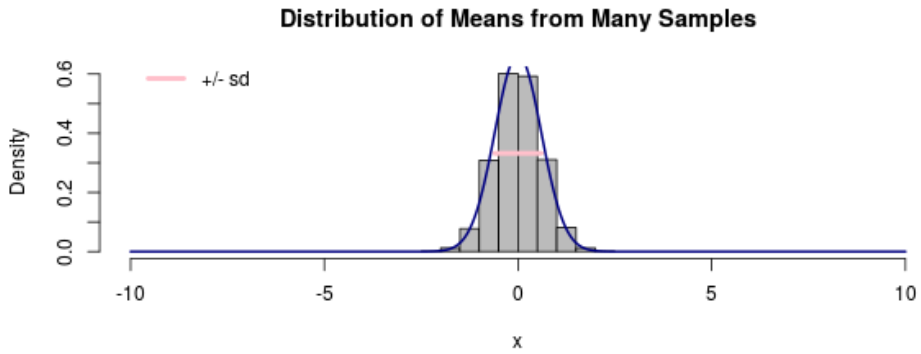
- **Central tendency / location**
  - mean
  - median
  - mode
- **Variation / Spread**
  - min, max, range
  - quantiles
  - standard deviation
  - standard error
  - coefficient of variation
  - confidence intervals



Relationship between SD and SEM

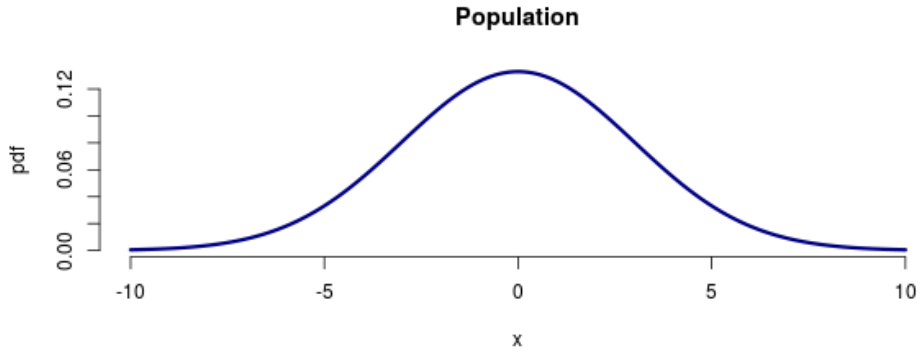


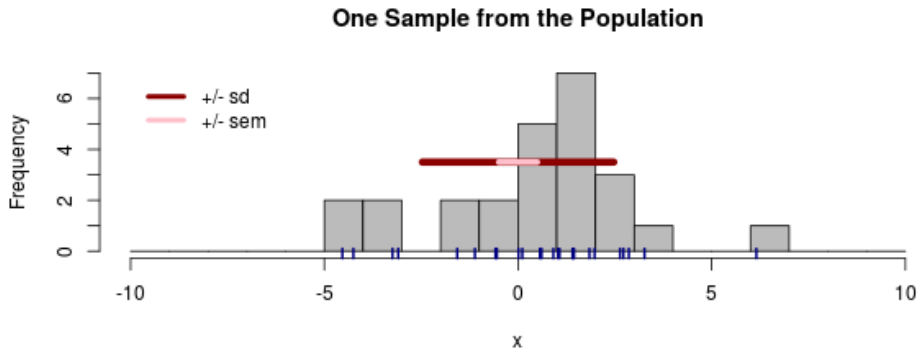


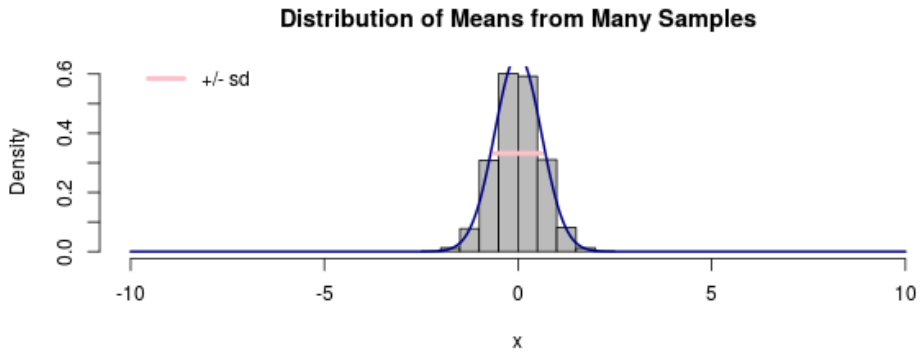


- SD quantifies scatter in population

Relationship between SD and SEM

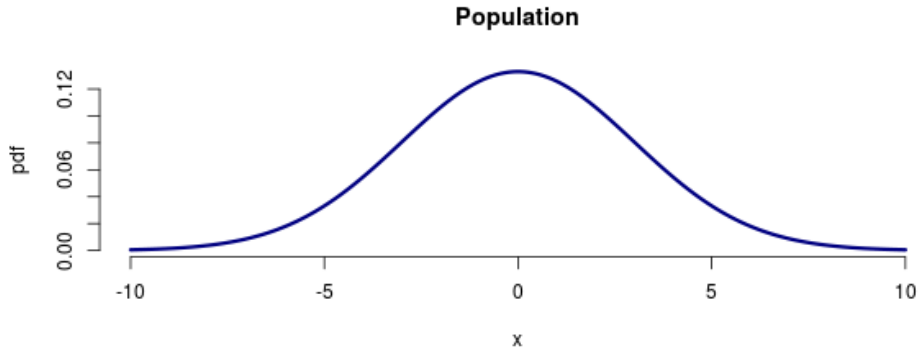


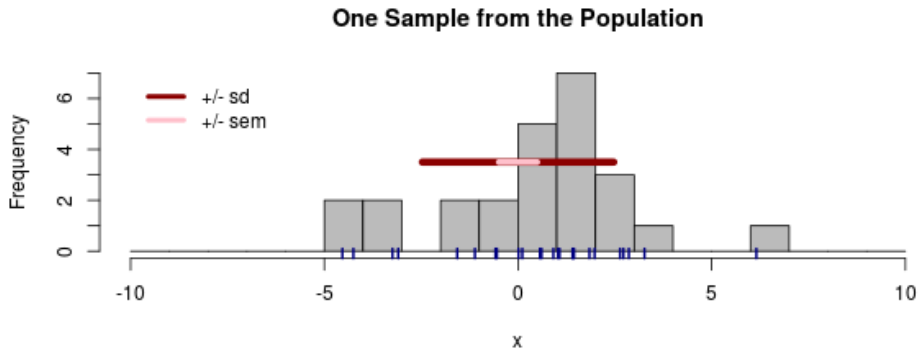


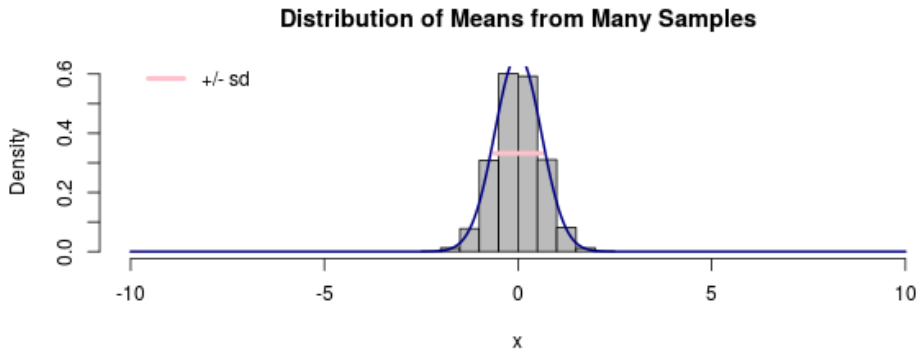


- SD quantifies scatter in population
- SEM quantifies uncertainty in parameter estimate (population mean)

Relationship between SD and SEM

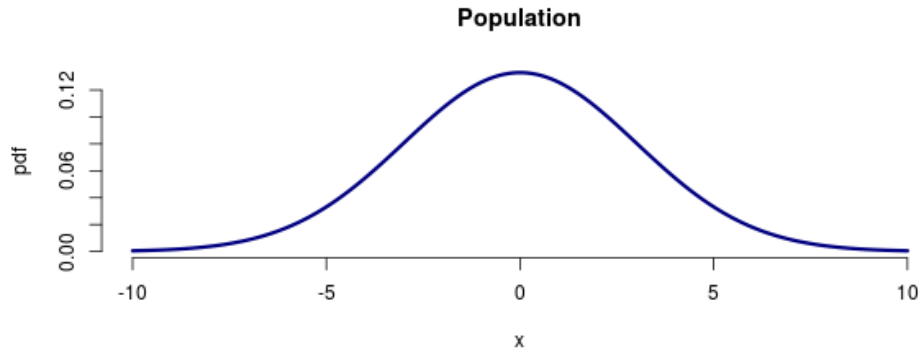


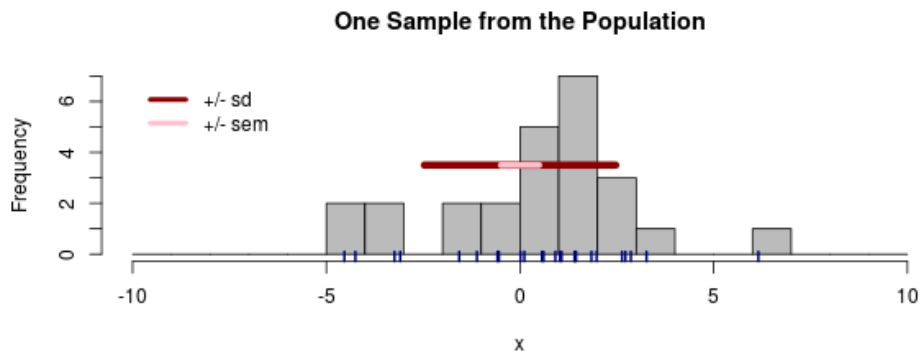


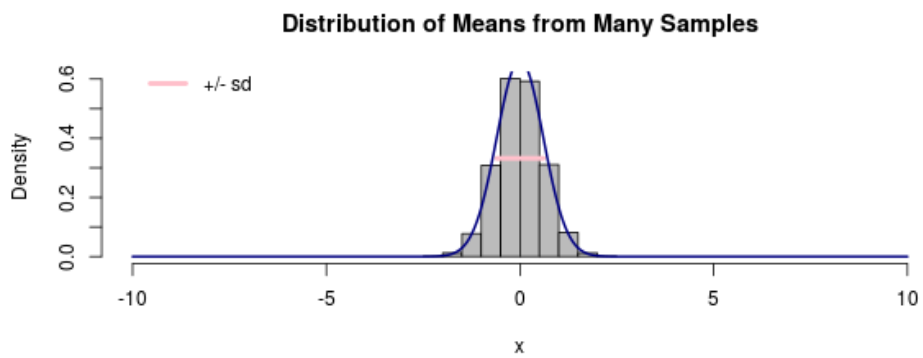


- SD quantifies scatter in population
- SEM quantifies uncertainty in parameter estimate (population mean)
- SEM = SD/sqrt(n)

Relationship between SD and SEM







- SD quantifies scatter in population
- SEM quantifies uncertainty in parameter estimate (population mean)
- SEM = SD/sqrt(n)
- SEM decreases with sample size (mean better known), SD does not.

In a Normal distribution

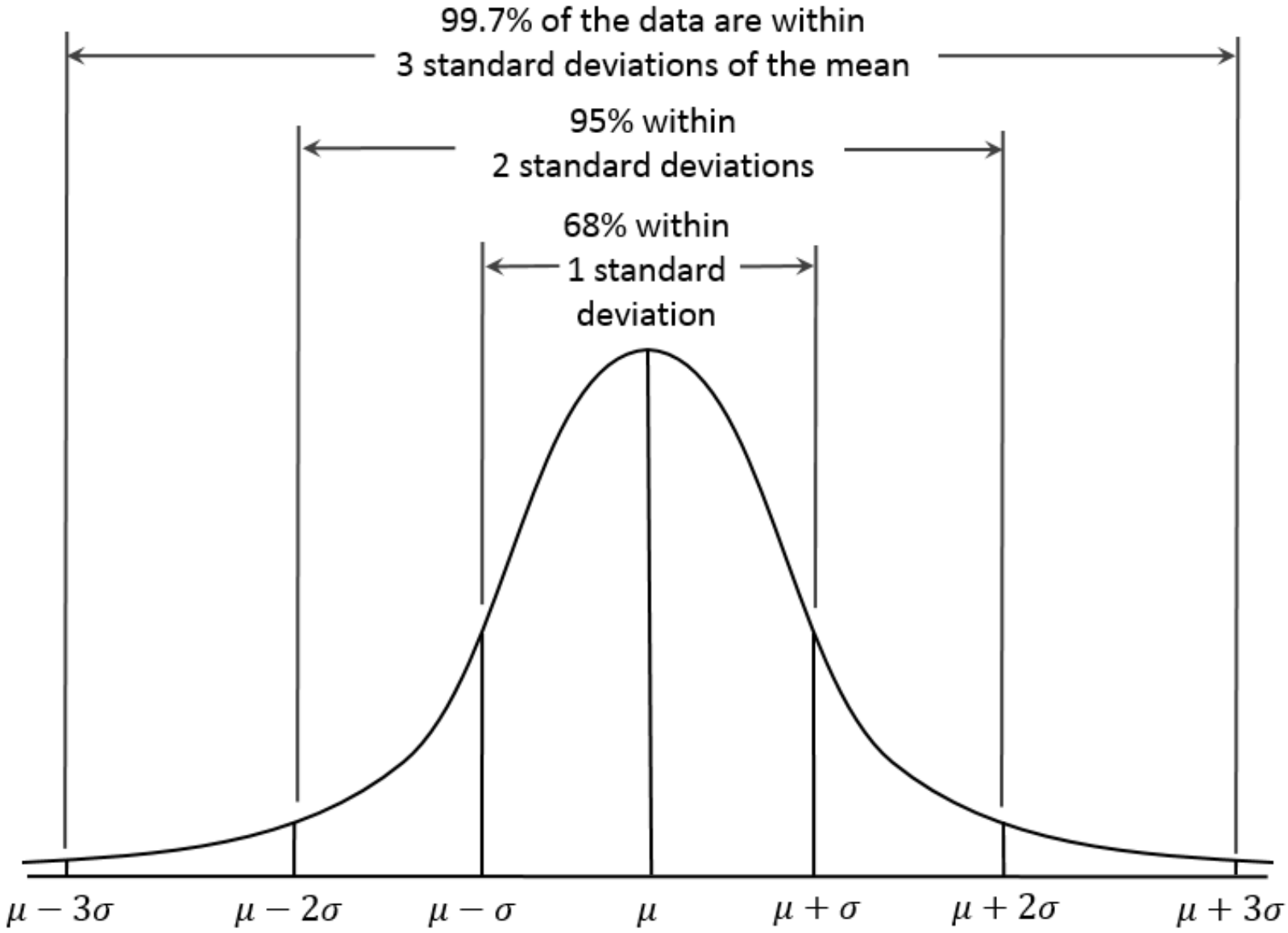


Figure 1:

What statistical descriptors are best? (and why)

https://pollev.com/franciscorod726