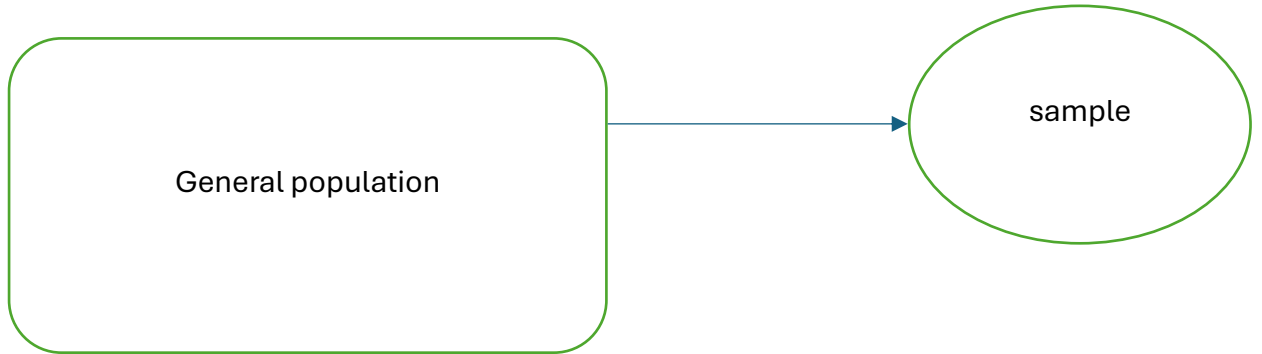


# Central Limit Theorem

1) Between sample and population



## 2) Central limit theorem

| parameters | sample    | population |
|------------|-----------|------------|
| Mean       | $\bar{X}$ | $\mu$      |
| Variance   | $S^2$     | $\sigma^2$ |
| St.d.      | $S$       | $\sigma$   |

When you have large enough sample size  $N$ , your sample mean would approximate your population mean

$$\bar{X} \approx \mu$$

And the standard error, which is the standard deviation of a sampling distribution for a given sample size  $N$  would equal

$$SE = \frac{\sigma}{\sqrt{N}}$$