This is a large-sample frequentist (12.
19 Jan
17)
next:
Bayesian stats
read 0
DSc.h.

quality of care:

outcomes:
ex.
of care:
mortality:
full recovery from
pre-morbid

processes of care:

ex.
how often were
vital signs measured?

Ans 131:

\[ E_{\mathcal{F}_D}(\hat{\theta}) = \theta \]
\[ \text{standard error} \]

\[ SD_{\text{rs, iid}} (\hat{\theta}) = SE_{\text{rs, iid}} (\hat{\theta}) \]

\[ \frac{\theta}{\sqrt{n}} \]

\[ \text{with fact (131)}: \]

\[ \text{pop. } S \] of binary \( \{i_s\} \)

\[ \text{pop with mean } \theta = \]

\[ \Gamma = \sqrt{\theta (1-\theta)} \]

\[ \text{let } Z_i \sim \text{Bernoulli}(\theta) \]

\[ E_{\text{rs}} (Z_i) = \theta \]

\[ \text{V}_{\text{rs}} (Z_i) = \theta (1-\theta) \]

\[ SD_{\text{rs}} (Z_i) = \sqrt{\text{V}_{\text{rs}} (Z_i)} = \sqrt{\theta (1-\theta)} \]
So \( \text{SD}_{\text{RS, IID}} (\widehat{\theta}) = \sqrt{\text{SE}(\widehat{\theta})^2} \).

Uncertainty: \( n \uparrow \text{SE}(\widehat{\theta}) \downarrow \)

Central Limit Theorem (CLT): As long as \( n \) is large, the RS dist. of the random variable \( \widehat{\theta} = \overline{Y} \) (sample mean based on a sample of size 1) will look a lot like the normal curve.
The closer the pop. dist. is to normal to begin with, the smaller n need to be.

If the pop. dist. is normal then the resp dist. of \( \bar{Y} = \hat{\theta} \)
is normal for all n.

Pop. dist.

Here

\[ f(x) = \begin{cases} \frac{1}{2} & \text{for } 0 < x < 1 \\ 0 & \text{otherwise} \end{cases} \]

badly non-normal:

\[ n = 112 \]

may not be big enough.

Closest to normal