. Chi - Square

→ Study : Cross - Sectional

→ Imp : Wether there's association or not
(doesn't tell strength of association)

$$\chi^2 = \frac{n\left((ab-cd)-n/2\right)^2}{(a+b)(a+c)(c+d)(d+b)}$$ (categorical Variables)

χ^2 ⁊ Critical value or $P < 0.05$ ⇒ ✓ association

• RR

→ Study : Cohort's Study

→ Imp : Strength of association

$$RR = \frac{a}{a+b} \Big/ \frac{c}{c+d}$$

Risk among Exposed ↩ ↳ Risk among non-Exposed

$RR \geq 3$ = High

$1.5 \leq RR \leq 2.9$ = moderate

$1.2 \leq RR \leq 1.4$ = weak

$RR = 1$ = no assoc.

$RR < 1$ = neg. association

• OR

→ Study · Case - Control

→ Imp : Strength of association

$$OR = \frac{a}{c} \Big/ \frac{b}{d} = \frac{ad}{cb}$$

(odd among diseased / odd among non-d.)

"cross product ✕"

Same as RR

→ Applicable
1. Control = All population
2. Selected case = All cases
3. Rare disease

• AR

→ How much of Risk is due to exposure.

→ Quantifies excess Risk

→ Risk difference

- AR = 0 no association
- AR ⩾ 0 + association
- AR ⩽ 0 - association

$$AR = Risk_{exposed} - Risk_{non\ exposed}$$

$$AR_{Percentage} = \left[\frac{Risk_{exposed} - Risk_{non\ exposed}}{Risk_{exposed}}\right] \times 100\%$$