

Effect measures

A quick introduction



Odds, Risk, OR, risk ratio

Odds:

$$P / (1-P)$$

Horseracing: 3 to 1 odds

How many horses total?

$$P = \frac{3}{4}, \text{ odds}=?$$

$$= \frac{3}{4} / (1 - (\frac{3}{4})) = ?$$

Risk

= # with disease

Divided by

Total number of people in group

10 of the 40 exposed individuals develop disease. Risk of disease among exposed = ?

Odds = ?

To compare 2 groups on relative scale...

Risk ratio = risk among exposed / risk among unexposed

If risk among exposed is higher, then risk ratio > 1 = harmful!

Risk ratio = 1 means?

Risk ratio < 1 means?

Odds ratio = odds among exposed / odds among unexposed

Same idea...

To compare on the absolute scale

E.g. Risk Difference (RD)

= risk among exposed minus risk among unexposed

Also can compare rates

events per time = incidence rate

Ratio of 2 incidence rates = IRR

Epidemiologist's best friend: 2x2 table

	Disease +	Disease -	Totals
Exposed	50	100	150
Non-exposed	30	170	200
Totals	80	270	350

Risk?

Risk ratio?

Odds?

Odds ratio?

What can I calculate in a cohort study?

	Disease +	Disease -	Totals
Exposed	50	100	150
Non-exposed	30	170	200
Totals	80	270	350

Risk?

Risk ratio?

Odds?

Odds ratio?

What can I calculate in a case-control study?

	Disease +	Disease -	Totals
Exposed	50	100	150
Non-exposed	30	170	200
Totals	80	270	350

Risk?

Risk ratio?

Odds?

Odds ratio?