Odds Ratio (OR)

The odds ratio is a way to measure association between individuals who have a disease and those that do not have disease and how much the presence or absence of a risk factor influences the outcome. It is most commonly derived from a case-control study and is calculated by using the values from a 2x2 contingency table in the formula OR = (a/c)/(b/d), or alternatively OR = ad/bc.



PLAY PICMONIC

Use

Case Control Studies
Case and Controller
These observational studies look at two groups based on outcome; individuals with disease, or cases, and similar individuals without disease, or controls. Looking retrospectively, the study seeks to identify risk factors common among these groups and then calculate how much a given risk factor weighs on the outcome. This calculation is quantified as the odds ratio.

Measures Association Between an Exposure and an Outcome
Measuring between Exposure to radiation and Healthy or Diseased Outcome
An odds ratio provides the probability that an individual with a disease or specific outcome was exposed to a risk factor at some point in the past.

Formula

Odds of Exposure in Diseased (Sick) Group
Odd-dice with Diseased group Exposed to radiation
The numerator of the formula compares the groups of people who have the disease and the odds that the people in these groups were exposed to a risk factor.

a / c
A-apple Divided by C-cat
The numerator of the formula is calculated by dividing those with disease and exposure (a) by those with disease but without exposure (c).

Divided /
Divide
This division step should be carried out last. First, divide the two terms found in the numerator and denominator respectively before dividing them altogether. Alternatively, you may rearrange the formula so that it becomes (a*d)/(b*c).

Odds of Exposure in Healthy Group
Odds-dice with Healthy group Exposed to radiation
The denominator of the formula compares the groups of people who do not have the disease and the odds that the people in these groups were exposed to a risk factor.

b / d
B-bee body-armor Divided by D-dog
The denominator of the formula is calculated by dividing those without disease but with exposure (b) by those without disease or exposure (d).

Interpretation

Sign up for FREE at picmonic.com

=1 Exposure does not affect odds

Equal to 1 shows radiation Exposure with No Effect

If the odds ratio is equal to one, then this implies that there is no association between the outcome and exposure, or in other words, exposure is not a risk factor for the outcome.

> 1 Exposure increases disease

Greater-than 1 shows Exposure to radiation causes Up-arrow Disease

When the odds of exposure for those with the outcome (cases) is more than those without the outcome (controls), it implies that exposure may increase the risk of disease.

< 1 Exposure decreases disease

Less-than 1 shows Exposure to radiation removes Down-arrow Disease

When the odds of exposure for those with the outcome (cases) is less than those without the outcome (controls), it implies that exposure may reduce the risk of disease.

Sign up for FREE at picmonic.com