

Chapter 910

Odds Ratio and Proportions Conversion Tool

Introduction

The Odds Ratio and Proportions Conversion Tool calculates p_1 , p_2 , the difference, ratio, odds ratio, $\ln(\text{OR})$, odds 1, or odds 2 from various combinations of these parameters. In this tool, p_1 and p_2 are the proportions in groups one and two, respectively. This tool is most often used when planning the sample size for a test involving two proportions. The tool may be loaded by selecting *Odds Ratio and Proportions Conversion Tool* from the *PASS-Tools* menu.

The ratio of the proportions is defined as

$$\text{Ratio} = \frac{p_1}{p_2}$$

The odds of obtaining the response of interest in group 1 are $p_1 / (1 - p_1)$ and the odds of obtaining the response in group 2 are $p_2 / (1 - p_2)$. The ratio of these odds, called the odds ratio, is defined as

$$\text{OR} = \frac{p_1 / (1 - p_1)}{p_2 / (1 - p_2)}$$

The natural log of the odds ratio, $\ln(\text{OR})$, gives a measure that has a range of negative infinity to positive infinity.

Odds Ratio and Proportions Conversion Tool

Examples

This window lets you calculate p_1 , p_2 , the difference, ratio, odds ratio, $\ln(OR)$, odds 1, and odds 2 from p_1 or p_2 and one of the other two parameters.

Example 1 – Solving for P1

Suppose you know that $p_2 = 0.2$ and that $OR = 4$ and you want to find the corresponding value of p_1 .

1. Load the **Odds Ratio and Proportions Conversion Tool** by selecting it from the *PASS-Tools* menu.
2. Select **P2** under **Enter**.
3. Select **Odds Ratio** under **And Enter**.
4. Set **P2** equal to **0.2**.
5. Set **Odds Ratio** equal to **4**.
6. Read the result in the P1 box. The result is **0.5**.

Example 2 – Solving for P2

Suppose you know that $p_1 = 0.6$ and that $OR = 1.5$ and you want to find the corresponding value of p_2 .

1. Load the **Odds Ratio and Proportions Conversion Tool** by selecting it from the *PASS-Tools* menu.
2. Select **P1** under **Enter**.
3. Select **Odds Ratio** under **And Enter**.
4. Set **P1** equal to **0.6**.
5. Set **Odds Ratio** equal to **1.5**.
6. Read the result in the P2 box. The result is **0.5**.

Example 3 – Solving for Odds Ratio

Suppose you know that $p_1 = 0.8$ and that $p_2 = 0.4$ and you want to find the corresponding value of the odds ratio.

1. Load the **Odds Ratio and Proportions Conversion Tool** by selecting it from the *PASS-Tools* menu.
2. Select **P1** under **Enter**.
3. Select **P2** under **And Enter**.
4. Set **P1** equal to **0.8**.
5. Set **P2** equal to **0.4**.
6. Read the result in the Odds Ratio box. The result is **6**.

Odds Ratio and Proportions Conversion Tool

Example 4 – Calculating $\ln(\text{OR})$

Suppose you know that $p_1 = 0.8$ and that $p_2 = 0.4$ and you want to find the corresponding value of $\ln(\text{OR})$.

1. Load the **Odds Ratio and Proportions Conversion Tool** by selecting it from the *PASS-Tools* menu.
2. Select **P1** under **Enter**.
3. Select **P2** under **And Enter**.
4. Set **P1** equal to **0.8**.
5. Set **P2** equal to **0.4**.
6. Read the result in the Ln(Odds Ratio) box. The result is **1.79176**.