

Package ‘mueRelativeRisk’

July 23, 2025

Title Relative Risk Based on the Ratio of Median Unbiased Estimates

Version 0.1.1

Description Implements an estimator for relative risk based on the median unbiased estimator. The relative risk estimator is well defined and performs satisfactorily for a wide range of data configurations. The details of the method are available in Carter et al (2010) <[doi:10.1111/j.1467-9876.2010.00711.x](https://doi.org/10.1111/j.1467-9876.2010.00711.x)>.

Depends R (>= 3.2.3)

Imports stats

License GPL-3

Encoding UTF-8

LazyData true

RoxygenNote 6.0.1

Suggests knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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Contents

dobeta	2
mue_confidence_interval	2
mue_rr	3

Index	4
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dobeta	<i>Function to determine the MUE estimate based on the beta distribution.</i>
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Description

This function calculates the median unbiased estimate for a single proportion.

Usage

```
dobeta(n, y)
```

Arguments

n	Number of independent trials.
y	Number of successes.

Value

A number with the MUE estimate

mue_confidence_interval	<i>Generate the exact bootstrap interval for the MUE estimate.</i>
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Description

This function enumerates the exact bootstrap confidence interval for the MUE-based estimate of the relative risk.

Usage

```
mue_confidence_interval(n1, p1, n2, p2, alpha)
```

Arguments

n1	Sample size for group 1.
p1	MUE estimate calculated by the dobeta function for group 1.
n2	Sample size for group 2.
p2	MUE estimate calculated by the dobeta function for group 2.
alpha	The significance level for the confidence interval.

Value

Returns a matrix of the upper and lower limits for the confidence interval.

`mue_rr`*Calculate relative risk based on ratio of median unbiased estimators.*

Description

This function calculates an estimate of relative risk based on the ratio of two median unbiased estimates of proportions based on the work by [Carter et al \(2010\)](#). The relative risk will be in the order of $\text{Pr}(\text{Group 1}) / \text{Pr}(\text{Group 2})$.

Usage

```
mue_rr(n1, y1, n2, y2, alpha = 0.05)
```

Arguments

<code>n1</code>	Sample size for group 1.
<code>y1</code>	Number of events in group 1.
<code>n2</code>	Sample size for group 2.
<code>y2</code>	Number of events in group 2.
<code>alpha</code>	The significance level for the confidence interval. Default value is 0.05.

Value

A dataframe with the various components generated during the estimation along with the MUE-based estimate of the relative risk.

Examples

```
mue_rr(9,1,11,0)
mue_rr(9,1,11,0,0.05)
mue_rr(3,0,4,0,0.05)
mue_rr(12,1,15,1,0.15)
```

Index

dobeta, [2](#)

mue_confidence_interval, [2](#)

mue_rr, [3](#)