Package ‘robvis’

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Title Visualize the Results of Risk-of-Bias (ROB) Assessments

Version 0.3.0

Description Helps users in quickly visualizing risk-of-bias assessments performed as part of a systematic review. It allows users to create weighted bar-plots of the distribution of risk-of-bias judgments within each bias domain, in addition to traffic-light plots of the specific domain-level judgments for each study. The resulting figures are of publication quality and are formatted according the risk-of-bias assessment tool use to perform the assessments. Currently, the supported tools are ROB2.0 (for randomized controlled trials; Sterne et al (2019) <doi:10.1136/bmj.l4898>), ROBINS-I (for non-randomised studies of interventions; Sterne et al (2016) <doi:10.1136/bmj.i4919>), and QUADAS-2 (for diagnostic accuracy studies; Whiting et al (2011) <doi:10.7326/0003-4819-155-8-201110180-00009>).

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Encoding UTF-8

LazyData true

RoxygenNote 6.1.1

Depends R (>= 2.10)

Imports ggplot2, tidyr, scales

Suggests knitr, rmarkdown, covr, testthat

VignetteBuilder knitr, rmarkdown

BugReports https://github.com/mcguinlu/robvis

URL https://github.com/mcguinlu/robvis

NeedsCompilation no

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R topics documented:

data_quadas ................................................................. 2
data_rob1 ................................................................. 3
data_rob2 ................................................................. 3
data_robins ............................................................... 4
robvis ....................................................................... 5
rob_summary ............................................................... 5
rob_tools ................................................................. 6
rob_traffic_light .......................................................... 6

Index 8

data_quadas  Example QUADAS-2 assessment

Description

'@format A data frame:

Study  Study details
D1  Domain 1
D2  Domain 2
D3  Domain 3
D4  Domain 4
Overall  Overall risk of bias
Weight  Weight measure for each study

Usage
data_quadas

Format

An object of class data.frame with 12 rows and 7 columns.

Source

Created for this package
### Description

```r
#' @format A data frame:

**Study**  Study details
**D1**  Domain 1
**D2**  Domain 2
**D3**  Domain 3
**D4**  Domain 4
**D5**  Domain 5
**D6**  Domain 6
**D7**  Domain 7
**Overall**  Overall risk of bias
**Weight**  Weight measure for each study
```

### Usage

```r
data_rob1
```

### Format

An object of class `data.frame` with 9 rows and 10 columns.

### Source

Created for this package

---

### Description

```r
#' @format A data frame:

**Study**  Study details
**D1**  Domain 1
**D2**  Domain 2
**D3**  Domain 3
**D4**  Domain 4
**D5**  Domain 5
**Overall**  Overall risk of bias
**Weight**  Weight measure for each study
```

### Usage

```r
data_rob2
```
Usage

data_rob2

Format

An object of class data.frame with 9 rows and 8 columns.

Source

Created for this package

data_robins

Example ROBINS-I assessment

Description

#' @format A data.frame:

Study  Study details
D1  Domain 1
D2  Domain 2
D3  Domain 3
D4  Domain 4
D5  Domain 5
D6  Domain 6
D7  Domain 7
Overall  Overall risk of bias
Weight  Weight measure for each study

Usage

data_robins

Format

An object of class data.frame with 12 rows and 10 columns.

Source

Created for this package
**Description**

The `robvis` package is designed to help users produce publication quality risk-of-bias assessment figures.

**rob_summary**

*Produce summary weighted barplots of risk-of-bias assessments.*

**Description**

A function to convert standard risk-of-bias output to tidy data and plot a summary barplot.

**Usage**

```r
rob_summary(data, tool, overall = FALSE, weighted = TRUE, colour = "cochrane", quiet = FALSE)
```

**Arguments**

- **data**
  A dataframe containing summary (domain) level risk-of-bias assessments, with the first column containing the study details, the second column containing the first domain of your assessments, and the final column containing a weight to assign to each study. The function assumes that the data includes a column for overall risk-of-bias. For example, a ROB2.0 dataset would have 8 columns (1 for study details, 5 for domain level judgments, 1 for overall judgements, and 1 for weights, in that order).

- **tool**
  The risk of bias assessment tool used. RoB2.0 (tool='ROB2'), ROBINS-I (tool='ROBINS-I'), and QUADAS-2 (tool='QUADAS-2') are currently supported.

- **overall**
  An option to include a bar for overall risk-of-bias in the figure. Default is FALSE.

- **weighted**
  An option to specify whether weights should be used in the barplot. Default is TRUE, in line with current Cochrane Collaboration guidance.

- **colour**
  An argument to specify the colour scheme for the plot. Default is 'cochrane' which used the ubiquitous Cochrane colours, while a preset option for a colour-blind friendly palette is also available (colour = 'colourblind').

- **quiet**
  An option to quietly produce the plot without displaying it.

**Value**

Risk of bias assessment barplot figure.
Examples

```r
data <- data.frame(stringsAsFactors=FALSE,
    Study = c("Study 1", "Study 2"),
    D1 = c("Low", "Some concerns"),
    D2 = c("Low", "Low"),
    D3 = c("Low", "Low"),
    D4 = c("Low", "Low"),
    D5 = c("Low", "Low"),
    Overall = c("Low", "Low"),
    Weight = c(33.33333333, 33.33333333)
)

rob_summary(data, "ROB2")
```

---

**rob_tools**  
*List tools covered by rob_summary().*

**Description**

rob_tools() will list the tools that can currently be plotted using the rob_summary() function.

**Usage**

```r
rob_tools()
```

**Examples**

```r
rob_tools()
```

---

**rob_traffic_light**  
*Produce traffic-light plots of risk-of-bias assessments.*

**Description**

A function to take a summary table of risk of bias assessments and produce a traffic light plot from it.

**Usage**

```r
rob_traffic_light(data, tool, colour = "cochrane", psize = 20,
    quiet = FALSE)
```
Arguments

- **data**: A dataframe containing summary (domain) level risk-of-bias assessments, with the first column containing the study details, the second column containing the first domain of your assessments, and the final column containing a weight to assign to each study. The function assumes that the data includes a column for overall risk-of-bias. For example, a ROB2.0 dataset would have 8 columns (1 for study details, 5 for domain level judgments, 1 for overall judgements, and 1 for weights, in that order).

- **tool**: The risk of bias assessment tool used. RoB2.0 (tool='ROB2'), ROBINS-I (tool='ROBINS-I'), and QUADAS-2 (tool='QUADAS-2') are currently supported.

- **colour**: An argument to specify the colour scheme for the plot. Default is 'cochrane' which used the ubiquitous Cochrane colours, while a preset option for a colour-blind friendly palette is also available (colour = 'colourblind').

- **psize**: Control the size of the traffic lights. Default is 20.

- **quiet**: An option to quietly produce the plot without displaying it.

Value

Risk-of-bias assessment traffic light plot (ggplot2 object)

Examples

```r
data <- data.frame(stringsAsFactors=FALSE,
                   Study = c("Study 1", "Study 2"),
                   D1 = c("Low", "Some concerns"),
                   D2 = c("Low", "Low"),
                   D3 = c("Low", "Low"),
                   D4 = c("Low", "Low"),
                   D5 = c("Low", "Low"),
                   Overall = c("Low", "Low"),
                   Weight = c(33.33333333, 33.33333333)
)

rob_traffic_light(data, "ROB2")
```
Index

*Top Topic datasets
  * data_quadas, 2
  * data_rob1, 3
  * data_rob2, 3
  * data_robins, 4

  data_quadas, 2
  data_rob1, 3
  data_rob2, 3
  data_robins, 4

  rob_summary, 5
  rob_tools, 6
  rob_traffic_light, 6
  robvis, 5
  robvis-package (robvis), 5