

Package ‘rankinPlot’

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Type Package

Title Convenient Plotting for the Modified Rankin Scale and Other Ordinal Outcome Data

Version 1.1.0

Maintainer Hannah Johns <htjohns@gmail.com>

Description Provides convenient tools for visualising ordinal outcome data following the “Grotta Bar” approach pioneered by The National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group (1995) <[doi:10.1056/NEJM199512143332401](https://doi.org/10.1056/NEJM199512143332401)>.

License GPL (>= 2.0)

Encoding UTF-8

LazyData true

Depends R (>= 2.10)

Imports ggplot2 (>= 3.3), scales (>= 1.2)

RoxygenNote 7.2.1

Suggests viridis

NeedsCompilation no

Author Hannah Johns [aut, cre] (ORCID:
<<https://orcid.org/0000-0003-2135-0504>>)

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alteplase	<i>Effect of time to treatment on efficacy of rt-PA in treating acute stroke</i>
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Description

A dataset reconstructing reported outcomes after stroke as reported in Lees et. al. (2010) which pooled the results of several studies.

Usage

```
alteplase
```

Format

A data frame with 3669 rows and 3 variables:

time Time interval (minutes) between stroke onset and treatment

treat Type of treatment received

mRS Outcome at 3 months measured using the modified Rankin Scale

References

Lees, K. R., Bluhmki, E., Von Kummer, R., Brodt, T. G., Toni, D., Grotta, J. C., Albers, G. W., Kaste, M., Marler, J. R., Hamilton, S. A., Tilley, B. C., Davis, S. M., Donnan, G. A., Hacke, W. (2010). Time to treatment with intravenous alteplase and outcome in stroke: an updated pooled analysis of ECASS, ATLANTIS, NINDS, and EPITHET trials. *The Lancet*, 375(9727), 1695-1703.

grottaBar	<i>grottaBar</i>
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Description

Automates the production of a Grotta Bar using ggplot()

Usage

```
grottaBar(x, groupName, scoreName, strataName = NULL,
          colorScheme="lowGreen",
          printNumbers = "count",
          nCol = 1, dir = "v",
          width = 0.9,
          textSize = 15, numberSize = 5,
          textFace = "plain",
          textColor = "black", textCut = 0,
          lineSize = 0.5,
          returnData = FALSE,
          ...
)
```

Arguments

<code>x</code>	a 2- or 3- dimensional table, returned by the <code>table()</code> function
<code>groupName</code>	a character string giving the name of the group variable
<code>scoreName</code>	a character string giving outcome (mRS) labels
<code>strataName</code>	a character string giving the strata variable name
<code>colorScheme</code>	a character string indicating the colors that should be used by the plot
<code>printNumbers</code>	a character string indicating if numbers should be printed for each category.
<code>nCol</code>	an integer indicating the number of columns to use for displaying stratified results. Has no effect if no stratification is used.
<code>dir</code>	a character indicating if stratified results should be laid out vertically ("v") or horizontally "h".
<code>width</code>	a number adjusting the width of the lines between bars
<code>textSize</code>	a number indicating the size of text labels
<code>numberSize</code>	a number indicating the size of printed numbers
<code>textFace</code>	a character string indicating font face of printed numbers. Can be "plain", "bold", "italic" or "bold.italic".
<code>textColor</code>	vector of two colors for text labels
<code>textCut</code>	Controls when the color of the text changes. The first <code>textCut</code> categories will use the first color
<code>lineSize</code>	a number indicating the thickness of lines in the plot
<code>returnData</code>	a boolean indicating if the data used to create the plot should be returned. For expert users only.
<code>...</code>	additional arguments. Ignored except for <code>colourScheme</code> and <code>textColour</code> which will override their counterpart arguments.

Details

This tool produces a "Grotta" bar chart based on a table of count data. A Grotta bar chart is a common data visualisation tool in stroke research, and is in essence a horizontally stacked proportional bar chart showing the distribution of ordinal outcome data (typically the modified Rankin Scale) across groups, with lines drawn connecting categories across groups.

The tool provides three default options for `colorScheme`:

- "lowGreen" A "traffic light" gradient from green to red, where low scores are colored green
- "lowRed" A "traffic light" gradient from red to green, where low scores are colored red
- "grayscale" A grayscale gradient for producing a black and white plot

In addition to these, setting `colorScheme="custom"` allows for a user-specified color scheme by using the `ggplot2` family of `scale_fill_` functions.

The options for `printNumbers` are:

- "count" The raw counts in the table.
- "proportion" The within-group proportion, rounded to 2 decimal places.

- "percentage" The within-group percentage, rounded to 2 decimal places.
- "count.percentage" The raw count with percentage in parentheses.
- "none" Do not print any numbers.

These options may be abbreviated. "p" is not a valid abbreviation as it matches to multiple options. The minimal abbreviation for "count.percentage" is "c.p"

Value

A ggplot object, or a list containing a ggplot object and the data used to generate it.

Examples

```
df <- alteplase
df$mRS <- df$mRS -1
x <- table(mRS=df$mRS,
           Group=df$treat,
           Time=df$time)

grottaBar(x,groupName="Group",
          scoreName = "mRS",
          strataName="Time",
          colorScheme ="lowGreen"
)

grottaBar(x,groupName="Time",
          scoreName = "mRS",
          strataName="Group",
          colorScheme ="grayscale"
)

x <- table(mRS=df$mRS,
           Group=df$treat)

grottaBar(x,groupName="Group",
          scoreName = "mRS",
          colorScheme ="custom"
) + ggplot2::scale_fill_brewer(palette = "Spectral", direction=-1)

grottaBar(x,groupName="Group",
          scoreName = "mRS",
          colorScheme ="custom",
          textFace = "italic",
          printNumbers = "count.percentage"
) + viridis::scale_fill_viridis(discrete = TRUE,direction = -1)

grottaBar(
  x,
  groupName = "Group",
  scoreName = "mRS",
  colorScheme = "custom",
```

```
        textFace = "italic",  
        printNumbers = "count.percentage"  
    ) + viridis::scale_fill_viridis(discrete = TRUE, direction = -1)
```

```
grottaBar(x, groupName="Group",  
        scoreName = "mRS",  
        colorScheme ="custom",  
        textFace = "italic",  
        textColor = c("black", "white"),  
        textCut = 5,  
        printNumbers = "count.percentage"  
    ) + viridis::scale_fill_viridis(discrete = TRUE, direction = -1)
```

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