Package 'rciplot'

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Type Package

Title Plot Jacobson-Truax Reliable Change Indices

Version 0.1.0

Description The concept of reliable and clinically significant change
(Jacobson & Truax, 1991) helps you answer the following questions for a
sample with two measurements at different points in time (pre & post):
Which proportion of my sample has a (considering the reliability of the
instrument) probably not-just-by-chance difference in pre- vs. post-scores?
Which proportion of my sample does not only change in a statistically
significant way (see question one), but also in a clinically significant way
(e.g. change from a test score regarded ``dysfunctional'' to a score regarded
``functional'')?
This package allows you to very easily create a scatterplot of your sample
in which the x-axis maps to the pre-scores, the y-axis maps to the
post-scores and several graphical elements (lines, colors) allow you to gain
a quick overview about reliable changes in these scores.
An example of this kind of plot is Figure 2 of Jacobson & Truax (1991).
Referenced article:
Jacobson, N. S., & Truax, P. (1991) <doi:10.1037/0022-006X.59.1.12>.

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URL https://gitlab.com/REDS1736/rciplot

Encoding UTF-8

LazyData true

Imports dplyr, ggplot2, stats, tibble

RoxygenNote 7.2.2

Depends R (>= 2.10)

NeedsCompilation no

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R topics documented:

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   rciplot   *rciplot*

Description

Create a scatterplot of your sample in which the x-axis maps to the pre-scores, the y-axis maps to the post-scores and several graphical elements (lines, colors) allow you to gain a quick overview about reliable changes in these scores. An example of this kind of plot is Figure 2 of Jacobson & Truax (1991). Jacobson-Truax classification (represented in point colors) is always based on 'recovery_cutoff', not on any other plotted horizontal line (e.g. mid of means).

Usage

```
rciplot(
  data,
  pre = NULL,
  post = NULL,
  group = NULL,
  reliability = NULL,
  recovery_cutoff = NULL,
  show_classification_counts = TRUE,
  show_classification_percentages = TRUE,
  higher_is_better = TRUE,
  pre_jitter = 0,
  post_jitter = 0,
  opacity = 0.5,
  size_points = 1,
  size_lines = 0.3,
  draw_meanmid_line = FALSE,
  draw_2sd_functional_line = FALSE,
  draw_2sd_dysfunctional_line = FALSE,
  mean_functional = NULL,
  mean_dysfunctional = NULL,
  sd_functional = 1,
  sd_dysfunctional = 1
)
```

Arguments

data	Dataframe containing all relevant data
pre	Name of the column in 'data' containing pre values

post	Name of the column in 'data' containing post values
group	Name of column by which cases are to be grouped (controls shape of scatter plot points)
reliability	Reliability of the used test / instrument
recovery_cutoff	
	Test score below which individuals are considered healthy / recovered
show_classification_counts	
	If TRUE, show number of cases for each classification (e.g. reliable improvement, no reliable change, ...) in legend
show_classification_percentages	
	Expanding on 'show_classification_counts'.If TRUE, show the respective percentage of the whole sample each classification makes up.
higher_is_better	
	TRUE if higher values indicate a remission / healthy individual. FALSE if higher values indicate worse health.
pre_jitter	Jitter factor to apply to pre values
post_jitter	Jitter factor to apply to post values
opacity	Alpha value of scatter plot points
size_points	Size of scatter plot points.
size_lines	Size (thickness) of lines in plot.
draw_meanmid_line	
	Draw a horizontal line indicating the middle between the population means for a functional (healthy) population and a dysfunctional (diseased) population, described as criterion *c* in Jacobson & Truax (1991).
draw_2sd_functional_line	
	Draw a horizontal line indicating a cutoff at a 2 SD distance from 'mean_functional', described as criterion *b* in Jacobson & Truax (1991).
draw_2sd_dysfunctional_line	
	Draw a horizontal line indicating a cutoff at a 2 SD distance from 'mean_dysfunctional', described as criterion *a* in Jacobson & Truax (1991).
mean_functional	
	Required if 'draw_meanmid_line = T' or 'draw_2sd_[dys]functional_line = T'. Mean test score of the functional population.
mean_dysfunctional	
	Required if 'draw_meanmid_line = T' or 'draw_2sd_[dys]functional_line'. Mean test score of the dysfunctional population.
sd_functional	Optional for 'draw_meanmid_line = T'. Standard deviation of the functional population.
sd_dysfunctional	
	Optional for 'draw_meanmid_line = T'. Standard deviation of the dysfunctional population.

Value

A list containing:

higher_is_better   Exactly the input parameter `higher_is_better`

reliable_change   Pre-Post differences larger than this difference are regarded reliable

plot   ggplot2 scatter plot analogous to Figure 2 of Jacobson & Truax (1991)

Examples

```
# Using example data from `sample_data.rda` to recreate Figure 2 of
# Jacobson & Truax (1991):
rciplot(
    data = sample_data,
    pre = 'pre_data',
    post = 'post_data',
    reliability = 0.88,
    recovery_cutoff = 104,
    opacity = 1
)
```

---

sample_data   *Sample Data from Jacobson & Truax (1991)*

Description

This data set is an excerpt from Table 2 of Jacobson & Truax (1991).

Usage

```
sample_data
```

Format

A CSV table containing the columns 'ppid', 'pre' and 'post' where 'ppid' is a continuously incrementing list of unique integers, 'pre' contains pretest values (floating-point) and 'post' contains posttest values (floating-point too)

Source

Table 2 in Jacobson & Truax (1991)

References

Jacobson, N. S., & Truax, P. (1991). Clinical Significance: A Statistical Approach to Defining Meaningful Change in Psychotherapy Research. Journal of Consulting and Clinical Psychology, 59, 12-19. <doi:10.1037/0022-006X.59.1.12>

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