Package 'psychtoolbox'

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Title Tools for psychology and psychometrics

Version 0.0.0.9000

Description This package contains functions helping to analyse psychological data.

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URL https://gitlab.com/lukas.novak/psychtoolbox

Encoding UTF-8

LazyData true

Roxygen list(markdown = TRUE)

RoxygenNote 7.2.0

Imports coin,
docxtractr,
dplyr,
equaltestMI,
foreign,
insight,
lavaan,
magrittr,
rmarkdown,
rstatix,
stats,
stringr,
tidyr

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

R topics documented:

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clin_sig_chang   *Clinically significant change*

Description

This easy function calculates Clinically significant change (clinical cut-off scores) as defined by Jacobson and Truax (1991).

Usage

```
clin_sig_chang(SD_0, SD_1, M_1, M_0)
```

Arguments

SD_0	standard deviation of the non-clinical population
SD_1	standard deviation of the clinical population
M_1	mean of the clinical population
M_0	mean of the non-clinical population

Format

numeric vector of values

Details

This function computes cut-off score differentiating between the clinical and non-clinical population based on the Jacobson and Truax (1991) formula (p. 13). The mathematical formula can be also found in Biescad & Timulak(2014), p. 150.

Value

numeric vector

Author(s)

Lukas Novak, <lukasjirinovak@gmail.com>

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(1), 12-19, DOI: https://doi.org/10.1037/0022-006X.59.1.12

Matus Biescad & Ladislav Timulak (2014). Measuring psychotherapy outcomes in routine practice: Examining Slovak versions of three commonly used outcome instruments, European Journal of Psychotherapy & Counselling, 16:2, 140-162, DOI: https://doi.org/10.1080/13642537.2014.895772

See Also

RCI() function for calculation of the Reliable Change Index

Examples

```
clin.cut.off=clin_sig_chang(SD_0 = 3.5,
                            SD_1 = 2.1,
                            M_0 = 4.2,
                            M_1 = 12.1)
clin.cut.off
```

---

dat	*DATASET_TITLE*

Description

DATASET_DESCRIPTION

Usage

```
dat
```

Format

A data frame with 835 rows and 2 variables:

Gender integer COLUMN_DESCRIPTION
IRI_EC double COLUMN_DESCRIPTION

Details

DETAILS

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mitab	*Measurement invariance table*

Description

Measurement invariance table

Usage

```
mitab(
  group1_nam,
  group2_nam,
  ordered,
  model,
  data,
  std.lv,
  meanstructure,
  group,
  yes_no_results,
  estimator,
  robust = FALSE,
  cfi.difference = FALSE
)
```

Arguments

`group1_nam`	name of the first group
`group2_nam`	name of the second group
`ordered`	logical, if set to TRUE items will be treated as ordered variables
`model`	lavaan model to test
`data`	data frame or tibble
`std.lv`	logical, if TRUE than standardized loadings are stored in temporal output
`meanstructure`	logical, if TRUE than model with meanstructure is estimated
`group`	name of grouping variable
`yes_no_results`	logical, if TRUE than lasy output indicating difference between models is added, currently working only based on CFI
`estimator`	name of estimator to be used during fitting procedure
`robust`	logical, if TRUE, than robust results are printed, working only with estimators providing robust results (e.g. MLR or DWLS)
`cfi.difference`	logical, if TRUE, delta of the CFI is printed in output

Format

An object of class `"tibble"`

Details

This function creates table with the key output from measurement invariance testing.

Value

data frame

Author(s)

Lukas Novak, <lukasjirinovak@gmail.com>

References

Myles Hollander and Douglas A. Wolfe (1973). Nonparametric Statistical Methods. New York: John Wiley & Sons. Pages 27–33 (one-sample), 68–75 (two-sample). Or second edition (1999).

Examples

```
# The famous Holzinger and Swineford (1939) example
HS.model <- ' visual  =~ x1 + x2 + x3
textual =~ x4 + x5 + x6
speed   =~ x7 + x8 + x9 '

library(lavaan)
dat <- HolzingerSwineford1939
res.tab.mi <- mitab(
group1_nam = "Grant-White",
group2_nam = "Pasteur",
ordered = FALSE,
model = HS.model,
```

```
data = dat,
std.lv = TRUE,
meanstructure = TRUE,
group = "school",
yes_no_results = TRUE,
estimator = "MLR",
robust = TRUE,
cfi.difference = TRUE)

print(res.tab.mi)
```

RCI *Reliable Change Index (RCI)*

Description

This function calculates Reliable Change Index (RCI) as modifed by Wiger and Solberg (2001, p.148).

Usage

```
RCI(SD_0, test.ret.rel)
```

Arguments

SD_0   standard deviation of the non-clinical population

test.ret.rel   test-retest reliability of the instrument

Format

numeric vector of values

Details

This function computes value corresponding to "the minimum amount of change that could not be attributed to the error of measurement" (Biescad & Timulak, 2014, p. 150). If score change from before to post treatment is lower that value resulting from this function, than change in client score can be attributed to the effectiveness of the therapy but rather other factors such as a measurement error (Biescad & Timulak, 2014). This function is a result of modification of the original Jacobson and Truax (1991) formula by Wiger and Solberg (2001, p.148).

Value

numeric vector

Author(s)

Lukas Novak, <lukasjirinovak@gmail.com>

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(1), 12-19, DOI: https://doi.org/10.1037/0022-006X.59.1.12

Matus Biescad & Ladislav Timulak (2014). Measuring psychotherapy outcomes in routine practice: Examining Slovak versions of three commonly used outcome instruments, European Journal of Psychotherapy & Counselling, 16:2, 140-162, DOI: https://doi.org/10.1080/13642537.2014.895772

Wiger, D. E., & Solberg, K. B. (2001). Tracking Mental Health Outcomes: A Therapist's Guide to Measuring Client Progress, Analyzing Data, and Improving Your Practice (1., Vol. 2001). Wiley.

See Also

clin_sig_chang() function for calculation of the clinical cut-off scores

Examples

```
re.ch.in = RCI(SD_0 = 4.87, test.ret.rel = 0.66)
re.ch.in
```

---

two.g.comp	*Automatic two-groups comparison*

Description

Automatic two-groups comparison

Usage

```
two.g.comp(df, y, group.var)
```

Arguments

df	data frame or tibble with one socio-demographic variable and one continuous variable
y	continuous variable
group.var	binary grouping variable

Format

An object of class "tibble"

Details

This function computes either Wilcox test or t-test depending on whether homogeneity of variances assumption is met or not.

Value

data frame

Author(s)

Lukas Novak, <lukasjirinovak@gmail.com>

References

Myles Hollander and Douglas A. Wolfe (1973). Nonparametric Statistical Methods. New York: John Wiley & Sons. Pages 27–33 (one-sample), 68–75 (two-sample). Or second edition (1999).

Examples

```
# data loading
data(dat)
# running the function
two.g.comp.out.EC = two.g.comp(df = dat, y = "IRI_EC", group.var = "Gender")
# printing the output
print(two.g.comp.out.EC)
```

---

word2pdf *word to pdf*

Description

Conversion of word document to pdf using either R Markdown package or Libre office. The latter represents higher quality approach - in general.

Usage

```
word2pdf(imp_file, out_file)
```

Arguments

imp_file	name of the word document to convert - without docx suffix
out_file	name of output pdf file without - without pdf suffix

Format

An object of class "pdf"

Details

this function is currently running only on windows

Value

pdf file

Author(s)

Lukas Novak, <lukasjirinovak@gmail.com>

Examples

```
# example from word do pdf
#word2pdf(imp_file = "example.docx",out_file = "example1.pdf")
```

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