

Package ‘medmod’

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Type Package

Title Simple Mediation and Moderation Analysis

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Description This toolbox allows you to do simple mediation and moderation analysis. It is also available as a module for 'jamovi' (see <<https://www.jamovi.org>> for more information). 'Medmod' is based on the 'lavaan' package by Yves Rosseel. You can find an in depth tutorial on the 'lavaan' model syntax used for this package on <<http://lavaan.ugent.be/tutorial/index.html>>.

License GPL (>= 2)

Encoding UTF-8

LazyData true

Depends R (>= 3.2)

Imports jmvcore (>= 0.5.5), R6, lavaan, ggplot2

Suggests testthat

RoxygenNote 6.0.1

URL <https://github.com/raviselker/medmod>

BugReports <https://github.com/raviselker/medmod/issues>

NeedsCompilation no

Repository CRAN

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| | |
|----------------|---|
| medmod-package | <i>medmod: Simple Mediation and Moderation Analysis</i> |
|----------------|---|

Description

A package for simple mediation and moderation based on the [lavaan](#) package by Yves Rosseel. Medmod is also available as a module for 'jamovi' (see www.jamovi.org for more information).

Details

| | |
|----------------------------|-----------------------|
| Simple mediation analysis | med() |
| Simple moderation analysis | mod() |

See Also

Useful links:

- <https://github.com/raviselker/medmod>
- Report bugs at <https://github.com/raviselker/medmod/issues>

| | |
|--------|------------------------|
| center | <i>Center a vector</i> |
|--------|------------------------|

Description

center returns a numeric vector with centered values.

Usage

```
center(x)
```

Arguments

| | |
|---|-----------------|
| x | Numeric vector. |
|---|-----------------|

| | |
|-----|------------------|
| med | <i>Mediation</i> |
|-----|------------------|

Description

Simple mediation analysis

Usage

```
med(data, dep, med, pred, estMethod = "standard", bootstrap = 1000,
    test = TRUE, ci = FALSE, ciWidth = 95, pm = FALSE, paths = FALSE,
    label = FALSE, estPlot = FALSE)
```

Arguments

| | |
|-----------|--|
| data | the data as a data frame |
| dep | a string naming the dependent variable |
| med | a string naming the mediator variable |
| pred | a string naming the predictor variable |
| estMethod | 'standard' (default), or 'bootstrap', the estimation method to use |
| bootstrap | a number between 1 and 100000 (default: 1000) specifying the number of samples that need to be drawn in the bootstrap method |
| test | TRUE (default) or FALSE, provide 'Z' and 'p' values for the mediation estimates |
| ci | TRUE or FALSE (default), provide a confidence interval for the mediation estimates |
| ciWidth | a number between 50 and 99.9 (default: 95) specifying the confidence interval width that is used as 'ci' |
| pm | TRUE or FALSE (default), provide the percent mediation effect size for the mediation estimates |
| paths | TRUE or FALSE (default), provide the individual estimates of the paths in the mediation model |
| label | TRUE (default) or FALSE, provide insightful labels for all estimates |
| estPlot | TRUE or FALSE (default), provide an estimate plot where for each estimator the estimated coefficient and confidence intervals are plotted. |

Value

A results object containing:

| | |
|----------------------|---|
| results\$med | a table containing mediation estimates |
| results\$paths | a table containing the individual path estimates |
| results\$estPlot | an image |
| results\$modelSyntax | the lavaan syntax used to fit the mediation model |

Tables can be converted to data frames with `asDF` or `as.data.frame`. For example:

```
results$med$asDF
as.data.frame(results$med)
```

Examples

```
set.seed(1234)
X <- rnorm(10)
M <- 0.5*X + rnorm(10)
Y <- 0.7*M + rnorm(10)
dat <- data.frame(X=X, M=M, Y=Y)

med(dat, dep = "Y", pred = "X", med = "M")

#
# Mediation Estimates
# -----
# Effect      Estimate    SE      Z      p
# -----
# Indirect    0.3736    0.0920   4.059  < .001
# Direct      0.0364    0.1044   0.348  0.728
# Total       0.4100    0.1247   3.287  0.001
# -----
#
#
```

mod

Moderation

Description

Simple mediation analysis

Usage

```
mod(data, dep, mod, pred, estMethod = "standard", bootstrap = 1000,
    test = TRUE, ci = FALSE, ciWidth = 95, simpleSlopeEst = FALSE,
    simpleSlopePlot = FALSE)
```

Arguments

| | |
|-----------|--|
| data | the data as a data frame |
| dep | a string naming the dependent variable |
| mod | a string naming the moderator variable |
| pred | a string naming the predictor variable |
| estMethod | 'standard' (default), or 'bootstrap', the estimation method to use |

| | |
|-----------------|--|
| bootstrap | a number between 1 and 100000 (default: 1000) specifying the number of samples that need to be drawn in the bootstrap method |
| test | TRUE (default) or FALSE, provide 'Z' and 'p' values for the mediation estimates |
| ci | TRUE or FALSE (default), provide a confidence interval for the mediation estimates |
| ciWidth | a number between 50 and 99.9 (default: 95) specifying the confidence interval width that is used as 'ci' |
| simpleSlopeEst | TRUE or FALSE (default), provide the estimates of the simple slopes. |
| simpleSlopePlot | TRUE or FALSE (default), provide a plot of the simple slopes. |

Value

A results object containing:

| | |
|---------------------------------|--|
| results\$mod | a table containing moderation estimates |
| results\$simpleSlope\$estimates | a table containing the simple slope estimates |
| results\$simpleSlope\$plot | an image |
| results\$modelSyntax | the lavaan syntax used to fit the moderation model |

Tables can be converted to data frames with `asDF` or `as.data.frame`. For example:

```
results$mod$asDF
as.data.frame(results$mod)
```

Examples

```
set.seed(1234)
X <- rnorm(10)
M <- rnorm(10)
X_M <- X*M
Y <- 0.7*X + 0.1*M + 4.2*X_M + rnorm(10)
dat <- data.frame(X=X, M=M, Y=Y)
```

```
mod(dat, dep = "Y", pred = "X", mod = "M")
```

```
#
# Moderation Estimates
# -----
#           Estimate   SE      Z      p
# -----
# X           0.951   0.0965   9.86   < .001
# M          -0.471   0.0923  -5.10   < .001
# X:M         4.185   0.1009  41.50   < .001
# -----
#
#
```

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