Package ‘apa’

March 4, 2019

Type Package
Title Format Outputs of Statistical Tests According to APA Guidelines
Version 0.3.2
Description Formatter functions in the ‘apa’ package take the return value of a statistical test function, e.g. a call to chisq.test() and return a string formatted according to the guidelines of the APA (American Psychological Association).

URL https://github.com/dgromer/apa
BugReports https://github.com/dgromer/apa/issues
License GPL (>= 3)
Depends R (>= 3.1.0)
Imports dplyr (>= 0.4), magrittr, purrr, rmarkdown, stringr
Suggests afex (>= 0.14), ez, testthat, knitr
Encoding UTF-8
LazyData true
RoxygenNote 6.1.1
VignetteBuilder knitr
NeedsCompilation no
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Repository CRAN
Date/Publication 2019-03-04 13:10:04 UTC

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Report ANOVA in APA style

Usage

anova_apa(x, effect = NULL, sph_corr = c("greenhouse-geisser", "gg", "huynh-feldt", "hf", "none"), es = c("petasq", "pes", "getasq", "ges"), format = c("text", "markdown", "rmarkdown", "html", "latex", "latex_math", "docx", "plotmath"), info = FALSE, print = TRUE)

Arguments

x A call to aov, ez::ezANOVA, or afex::afex_ez, afex::afex_car or afex::afex_4

effect Character string indicating the name of the effect to display. If is NULL, all effects are reported (default).

sph_corr Character string indicating the method used for correction if the assumption of sphericity is violated (only applies to repeated-measures and mixed design ANOVA). Can be one of "greenhouse-geisser" (default), "huynh-feldt" or "none" (you may also use the abbreviations "gg" or "hf").

es Character string indicating the effect size to display in the output, one of "petasq" (partial eta squared) or "getasq" (generalized eta squared) (you may also use the abbreviations "pes" or "ges").

format Character string specifying the output format. One of "text", "markdown", "rmarkdown", html, "latex", "latex_math", "docx" or "plotmath".

info Logical indicating whether to print a message on the used test (default is FALSE)

print Logical indicating whether to print the formatted output via cat (TRUE, default) or return as a data frame.
APA Formatting for RMarkdown Reports

Description
A wrapper around the *_apa functions, providing a convenient way to use the formatters in inline code in RMarkdown documents.

Usage
apa(x, effect = NULL, format = "rmarkdown", print = FALSE, ...)

Arguments
- **x**: An R object. Must be a call to one of afex::aov_4, afex::aov_car, afex::aov_ez, chisq.test, cor.test, ez::ezANOVA or t.test.
- **effect**: (only applicable if x is an ANOVA) Character string indicating the name of the effect to display. If is NULL, all effects are reported (default).
- **format**: Character string specifying the output format. One of "text", "markdown", "rmarkdown", html, "latex" or "docx".
- **print**: Logical indicating whether to return the result as an R object (FALSE) or print using cat (TRUE).
- **...**: Further arguments passed to other methods

See Also
anova_apa, chisq_apa, cor_apa, t_apa
chisq.apa  Report Chi-squared test in APA style

Description

Report Chi-squared test in APA style

Usage

chisq.apa(x, print_n = FALSE, format = c("text", "markdown", "rmarkdown", "html", "latex", "latex_math", "docx", "plotmath"), info = FALSE, print = TRUE)

Arguments

x A call to chisq.test

print_n Logical indicating whether to show sample size in text

format Character string specifying the output format. One of "text", "markdown", "rmarkdown", html, "latex", "latex_math", "docx" or "plotmath".

info Logical indicating whether to print a message on the used test (default is FALSE)

print Logical indicating whether to print the formatted output via cat (TRUE, default) or return as character string.

Examples

# Example data from ?chisq.test
m <- rbind(c(76, 327, 468), c(484, 239, 477))

chisq.apa(chisq.test(m))

cohens_d  Cohen's d

Description

Calculate Cohen's d from raw data or a call to t.test/t.test.
**Usage**

```r
cohens_d(...)  
```

---

### Default S3 method:

```r
cohens_d(x, y = NULL, paired = FALSE,  
corr = c("none", "hedges_g", "glass_delta"), na.rm = FALSE, ...)
```

---

### S3 method for class 'data.frame'

```r
cohens_d(data, dv, iv, paired = FALSE,  
corr = c("none", "hedges_g", "glass_delta"), na.rm = FALSE, ...)
```

---

### S3 method for class 'formula'

```r
cohens_d(formula, data, paired = FALSE,  
corr = c("none", "hedges_g", "glass_delta"), na.rm = FALSE, ...)
```

---

### S3 method for class 'htest'

```r
cohens_d(ttest, corr = c("none", "hedges_g",  
"glass_delta"), ...)
```

---

### Arguments

- `...`: Further arguments passed to methods.
- `x`: A (non-empty) numeric vector of data values.
- `y`: An optional (non-empty) numeric vector of data values.
- `paired`: A logical indicating whether Cohen’s d should be calculated for a paired sample or two independent samples (default). Ignored when calculating Cohen’s for one sample.
- `corr`: Character specifying the correction applied to calculation of the effect size: "none" (default) returns Cohen’s d, "hedges_g" applies Hedges correction and "glass_delta" calculates Glass’ ∆ (uses the standard deviation of the second group).
- `na.rm`: Logical. Should missing values be removed?
- `data`: A data frame containing either the variables in the formula `formula` or the variables specified by `dv` and `iv`.
- `dv`: Character indicating the name of the column in `data` for the dependent variable.
- `iv`: Character indicating the name of the column in `data` for the independent variable.
- `formula`: A formula of the form `lhs ~ rhs` where `lhs` is a numeric variable giving the data values (dependent variable) and `rhs` a factor with two levels giving the corresponding groups (independent variable).
- `ttest`: An object of class `htest` (a call to either `t_test` (preferred) or `t.test`).

### Details

To calculate Cohen’s d from summary statistics (M, SD, ..) use `cohens_d_`.
Cohen's $d$

Description

Calculate Cohen's $d$ from different statistics (see Details).

Usage

```r
cohens_d_(m1 = NULL, m2 = NULL, sd1 = NULL, sd2 = NULL, n1 = NULL, n2 = NULL, t = NULL, n = NULL, paired = FALSE, corr = c("none", "hedges_g", "glass_delta"))
```

Arguments

- `m1`: Numeric, mean of the first group
- `m2`: Numeric, mean of the second group
- `sd1`: Numeric, standard deviation of the first group
- `sd2`: Numeric, standard deviation of the second group
- `n1`: Numeric, size of the first group
- `n2`: Numeric, size of the second group
- `t`: Numeric, t-test statistic
- `n`: Numeric, total sample size
- `paired`: Logical indicating whether to calculate Cohen’s $d$ for independent samples or one sample (FALSE, default) or for dependent samples (TRUE).
- `corr`: Character specifying the correction applied to calculation of the effect size: "none" (default) returns Cohen’s $d$, "hedges_g" applies Hedges correction and "glass_delta" calculates Glass' $\Delta$ (uses the standard deviation of the second group).
Details

The following combinations of statistics are possible:

• m1, m2, sd1, sd2, n1 and n2
• t, n1 and n2
• t and n

References


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**cor_apa**

**Report Correlation in APA style**

Description

Report Correlation in APA style

Usage

```r
cor_apa(x, format = c("text", "markdown", "rmarkdown", "html", "latex", "latex_math", "docx", "plotmath"), info = FALSE, print = TRUE)
```

Arguments

- **x** A call to `cor.test`
- **format** Character string specifying the output format. One of "text", "markdown", "rmarkdown", html, "latex", "latex_math", "docx" or "plotmath".
- **info** Logical indicating whether to print a message on the used test (default is FALSE)
- **print** Logical indicating whether to print the formatted output via `cat` (TRUE, default) or return as character string.

Examples

```r
# Example data from ?cor.test
x <- c(44.4, 45.9, 41.9, 53.3, 44.7, 44.1, 50.7, 45.2, 60.1)
y <- c(2.6, 3.1, 2.5, 5.0, 3.6, 4.0, 5.2, 2.8, 3.8)
cor_apa(cor.test(x, y))

# Spearman's rho
cor_apa(cor.test(x, y, method = "spearman"))

# Kendall's tau
cor_apa(cor.test(x, y, method = "kendall"))
```
petasq  Partial Eta Squared

Description

Partial Eta Squared

Usage

petasq(x, effect)

Arguments

x  A call to aov, ez::ezANOVA or afex::aov_ez or afex::aov_car or afex::aov_4
effect  Character string indicating the name of the effect for which the partial eta squared should be returned.

petasq_  Partial Eta Squared

Description

Calculate the partial eta squared effect size from sum of squares.

\[ \eta_p^2 = \frac{SS_{\text{effect}}}{SS_{\text{effect}} + SS_{\text{error}}} \]

Usage

petasq_(ss_effect, ss_error)

Arguments

ss_effect  numeric, sum of squares of the effect
ss_error  numeric, sum of squares of the corresponding error
Report t-Test in APA style

Description

Report t-Test in APA style

Usage

t_apa(x, es = "cohens_d", format = c("text", "markdown", "rmarkdown", "html", "latex", "latex_math", "docx", "plotmath"), info = FALSE, print = TRUE)

Arguments

x A call to t_test or t.test

es Character specifying the effect size to report. One of "cohens_d" (default), "hedges_g" or "glass_delta" if x is an independent samples t-test. Ignored if x is a paired samples or one sample t-test (cohen’s d is reported for these test).

format Character string specifying the output format. One of "text", "markdown", "rmarkdown", "html", "latex", "latex_math", "docx" or "plotmath".

info Logical indicating whether to print a message on the used test (default is FALSE)

print Logical indicating whether to print the formatted output via cat (TRUE, default) or return as character string.

Examples

# Two independent samples t-test
t_apa(t_test(l:10, y = c(7:20)))

# Two dependent samples t-test
t_apa(t_test(extra ~ group, sleep, paired = TRUE))

t_test

Student’s t-Test

Description

A wrapper for t.test which includes the original data in the returned object.
Usage

t_test(x, ...)

## Default S3 method:
t_test(x, y = NULL, alternative = c("two.sided", "less", "greater"), mu = 0, paired = FALSE, var.equal = FALSE, conf.level = 0.95, ...)

## S3 method for class 'formula'
t_test(formula, data, subset, na.action, ...)

Arguments

x a (non-empty) numeric vector of data values.

... further arguments to be passed to or from methods.

y an optional (non-empty) numeric vector of data values.

alternative a character string specifying the alternative hypothesis, must be one of "two.sided" (default), "greater" or "less". You can specify just the initial letter.

mu a number indicating the true value of the mean (or difference in means if you are performing a two sample test).

paired a logical indicating whether you want a paired t-test.

var.equal a logical variable indicating whether to treat the two variances as being equal. If TRUE then the pooled variance is used to estimate the variance otherwise the Welch (or Satterthwaite) approximation to the degrees of freedom is used.

conf.level confidence level of the interval.

formula a formula of the form lhs ~ rhs where lhs is a numeric variable giving the data values and rhs a factor with two levels giving the corresponding groups.

data an optional matrix or data frame (or similar: see model.frame) containing the variables in the formula formula. By default the variables are taken from environment(formula).

subset an optional vector specifying a subset of observations to be used.

na.action a function which indicates what should happen when the data contain NAs. Defaults to getOption("na.action").

See Also

t.test
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