Package 'DemographicTable'

April 4, 2024

Type Package

Title Creating Demographic Table

Version 0.1.7

Date 2024-04-03

Description Functions for creating demographic table with simple summary statistics, with optional comparison(s) over one or more groups. Numeric variables are summarized in means, standard deviations, medians, inter-quartile-ranges (IQR), skewness, Shapiro-Wilk normality test and ranges, and compared using two-sample t-test, Wilcoxon test, ANOVA and/or Kruskal-Wallis test. Logical and factor variables are summarized in counts and percentages and compared using chi-squared test and/or Fisher's exact test.

License GPL-2

Encoding UTF-8

Imports flextable, e1071, xtable

Language en-US

Depends R (>= 4.3.0)

Suggests officer, MASS

RoxygenNote 7.3.1

NeedsCompilation no

Author Tingting Zhan [aut, cre, cph] (<https://orcid.org/0000-0001-9971-4844>)

Maintainer Tingting Zhan <tingtingzhan@gmail.com>

Repository CRAN

Date/Publication 2024-04-04 02:43:03 UTC

R topics documented:

`as_flextable.DemographicTable`

Convert DemographicTable to flextable

Description

Convert a DemographicTable to flextable object.

Usage

```
## S3 method for class 'DemographicTable'
as_flextable(x, ...)
```

Arguments

`x`	a DemographicTable object
`...`	potential additional parameters, not currently in use

Value

Function as_flextable.DemographicTable returns a flextable object.

Note

End user may use set_caption to add a caption to the output demographic table.

class1List *First Class of Each Element in a Recursive Object*

Description

First class of each element in a recursive object

Usage

```
class1List(x)
```

Arguments

x	a recursive object, e.g., data.frame or list

Value

Function class1List returns a list of character elements. Each element is a collection of the names of the elements of each specific class.

Examples

```
class1List(esoph)
class1List(lm(Ozone ~ Wind + Temp, data = airquality))
```

DemographicTable *Create Demographic Table*

Description

Create a demographic table with simple summary statistics, with optional comparison(s) over one or more groups.

Usage

```
DemographicTable(data, ...)

## S3 method for class 'data.frame'
DemographicTable(
  data,
  data.name = substitute(data),
  groups = NULL,
  keep_missing_group = TRUE,
  exclude = NULL,
  exclude_pattern,
  include,
  include_pattern,
  paired = FALSE,
  robust = TRUE,
  overall = TRUE,
  compare = TRUE,
  pairwise = 3L,
  ...
)
```

Arguments

`data` a data.frame

`...` additional parameters, currently not in use

`data.name` character scalar, or the argument call of `data`. A user-friendly name of the input `data`.

`groups` character scalar or vector, the name(s) of sub-group(s) for which the summary statistics are to be provided. Default `NULL` indicating no sub-groups.

`keep_missing_group`
logical scalar. If `TRUE` (default), the subjects with missing `group` are put into a new group (`'.missing'`). if `FALSE`, these subjects are removed from group-wise summary statistics.

`exclude` character vector, the name(s) of variable(s) to be excluded. Default `NULL` indicating no variable are to be excluded.

`exclude_pattern`
(optional) character scalar as regex (regular expression), the pattern of the names of the variable(s) to be excluded.

`include` character vector, the name(s) of variable(s) to be included. Default `names(data)` indicating all variables are to be included.

`include_pattern`
(optional) character scalar as regex (regular expression), the pattern of the names of the variable(s) to be included.

`paired` logical scalar, whether to perform paired test (default `FALSE`)

`robust` logical scalar. If `TRUE` (default), use non-parametric methods for non-normally distributed numeric variables.

`overall` logical scalar. If `TRUE` (default), a column of overall summary statistics will be provided.

`compare` logical scalar. If `TRUE` (default), comparisons between group(s) will be made.

`pairwise` integer scalar, minimum number of groups where pairwise comparisons need to be performed. Default `3L`.

Details

A demographic table with simple summary statistics, with optional comparison(s) over one or more groups, is created.

numeric variables are summarized in means, standard deviations, medians, inter-quartile-ranges (IQR), skewness, p-value of Shapiro-Wilk normality test and ranges. If group is specified, they are compared using two-sample t.test, wilcox.test (Wilcoxon / Mann-Whitney), one-way aov (ANOVA) and/or kruskal.test (Kruskal-Wallis).

logical and factor variables are summarized in counts and percentages. If group is specified, they are compared using prop.test (chi-squared) and/or fisher.test (Fisher's exact).

Value

Function DemographicTable returns an object of S3 class 'DemographicTable', which inherits from matrix.

Examples

```
DemographicTable(esoph)
DemographicTable(ToothGrowth, groups = 'supp', include = 'len')
DemographicTable(ToothGrowth, groups = 'supp', include = 'len', paired = TRUE)
DemographicTable(ToothGrowth, groups = 'supp', include = 'len', compare = FALSE)
DemographicTable(warpbreaks, groups = c('wool', 'tension'))
DemographicTable(mtcars, groups = c('vs', 'am'), include = c('mpg', 'cyl', 'disp'))

# with missing value
DemographicTable(airquality, groups = 'Month', exclude = 'Day')
DemographicTable(MASS::survey, groups = 'Smoke', keep_missing_group = FALSE)
DemographicTable(MASS::survey, groups = 'Smoke', keep_missing_group = FALSE, useNA = 'always')

# write to Word file
library(flextable)
library(officer)
x = read_docx() |> body_add_flextable(value = as_flextable(DemographicTable(esoph)))
(out = file.path(tempdir(), 'demotable.docx'))
print(x, target = out)
# system(paste('open', out)) # works on Mac & Windows, but requires Microsoft Word
file.remove(out)
```

---

pval_shapiro *p-value from modified Shapiro-Wilk Normality Test*

Description

Obtain p-value from shapiro.test, taking into consideration of several exceptions.

Usage

```
pval_shapiro(x, CLT = FALSE, ...)
```

Arguments

`x` double vector

`CLT` logical scalar, whether to allow the use of Central Limit Theorem, default `FALSE`

`...` additional parameters, currently not in use

Details

Function pval_shapiro provides a pseudo p-value for several exceptions of shapiro.test, serving as a criteria of whether robust statistics/tests need to be used

- `length(x) < 3L` returns $p = 0$, indicating that robust methods are needed.
- `length(x) > 5e3L` returns $p = 1$, indicating that no robust method is needed. For such large sample size, robust methods could be too slow.
- `CLT & length(x) > 30L` returns $p = 1$, indicating that no robust method is needed because of the use of Central Limit Theorem.
- **all `x` values are identical (or all.equal, to be implemented in future release)** returns $p = 0$, indicating that robust methods are needed.
- **Otherwise** use the p-value from shapiro.test.

Value

Function pval_shapiro returns a double scalar.

Examples

```
pval_shapiro(rnorm(5))
sapply(with(airquality, split(Ozone, f = Month)), FUN = pval_shapiro)
```

`summaryText` *Summary Text*

Description

Provide the summary text of an R object

Usage

```
summaryText(x, fmt, ...)

## Default S3 method:
summaryText(x, fmt = "%.2f", ...)

## S3 method for class 'factor'
summaryText(x, fmt = "%.1f", useNA = c("no", "always"), ...)
```

```
## S3 method for class 'ordered'
summaryText(x, fmt = "%.1f", useNA = c("no", "always"), ...)

## S3 method for class 'character'
summaryText(x, ...)

## S3 method for class 'logical'
summaryText(x, fmt = "%.1f", ...)
```

Arguments

`x`	an R object
`fmt`	character scalar, format string, see sprintf
`...`	additional parameters, currently not in use
`useNA`	character scalar, `'no'` (default) or `'always'`, see table

Value

Function summaryText returns a character scalar.

Examples

```
x = rpois(n = 20L, lambda = 2)
x[sample.int(length(x), 3L)] = NA_integer_
summaryText(x)

# factor
x = state.region
x[2L] = NA_integer_
summaryText(x)

# binary
summaryText(c(TRUE, FALSE, TRUE, NA))
summaryText(c(TRUE, FALSE, TRUE))
summaryText(c(FALSE, FALSE, NA))
summaryText(c(FALSE, FALSE, FALSE))
summaryText(c(NA, NA, NA))
```

`xtable.DemographicTable`

Write DemographicTable to LaTeX

Description

Write DemographicTable to LaTeX.

Usage

```
## S3 method for class 'DemographicTable'
xtable(x, ...)
```

Arguments

`x`	a DemographicTable object
`...`	additional parameters of xtable

Value

Function xtable.DemographicTable returns an xtable object.

Examples

```
(tb = DemographicTable(ToothGrowth, groups = 'supp'))
library(xtable)
print(xtable(tb), sanitize.text.function = identity,
 sanitize.colnames.function = NULL, include.rownames = FALSE)
```

Index