# Package 'easytab'

July 20, 2020

**Type** Package

**Title** Functions that create result tables easily

**Version** 0.1.0

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**Description** The functions in the package computes and creates matrix-formatted tables, which can be displayed in word, pdf, and html format. Since the process of table generation is very time-consuming, this package was intended to help researchers to save time and effort when creating research tables in R. The package offers useful functions for tables that summarize baseline characteristics table and regression tables such as logistic, Cox proportional hazard (PH), and linear regressions.

**License** GPL-3

**Imports** coin, dplyr, survival

**Encoding** UTF-8

**LazyData** TRUE

**RoxygenNote** 7.1.1

## R topics documented:

chrtab *Create Baseline Characteristics Table*

## Description

The function takes data and creates a table of baseline characteristics for the whole cohort.

## Usage

```
chrtab(
  variable,
  type,
  label,
  data,
  digits = 2,
  summary = "median",
  useNA = FALSE,
  na = "N/A",
  col1st = ""
)
```

## Arguments

| | |
|---|---|
| variable | a vector of variables |
| type | a vector of types either categorical or numerical ("cat" or "num") |
| label | a vector of labels shown in the table |
| data | data frame dataset |
| digits | number of decimal points for numerical variable |
| summary | three options are available for the numerical variable to be displayed; If median, median with min and max is calculated. If median.iq, median with 25 and 75 percentiles is calculated. If mean, mean with its standard deviation is calculated. Default is "median". |
| useNA | option whether or not NULL value is displayed for the categorical variable in the table. If TRUE, character in argument na is displayed for NULL value with its percentage. Default is FALSE. |
| na | character to be displayed for NULL value if useNA is TRUE. Default is "N/A". |
| col1st | character label displayed in the 1st cell in the table |

## Value

summary matrix with calculated baseline characteristics

## Examples

```
chrtab(variable=c("mpg","gear"),type=c("num","cat"),
       label=c("MPG", "Gear"),data=mtcars,
       summary="median",useNA=FALSE,na="N/A",col1st="")
```

chrtab.by *Create Baseline Characteristics Table by Two Groups*

## Description

The chrtab.by function takes data and creates a table for baseline characteristics stratified by two groups. Both categorical and numerical variables are included and analyzed together. P values will be bolded in the Markdown document if it is less than 0.05.

## Usage

```
chrtab.by(
  variable,
  type,
  label,
  data,
  digits = 2,
  summary = "median",
  vargroup,
  vargroup.lab = NULL,
  displaytot = TRUE,
  chisqtest = FALSE,
  ttest = FALSE,
  useNA = FALSE,
  na = "N/A",
  col1st = ""
)
```

## Arguments

| | |
|---|---|
| variable | a vector of variables |
| type | a vector of types either categorical or numerical ("cat" or "num") |
| label | a vector of labels shown in the table |
| data | data frame dataset |
| digits | number of decimal points for numerical variable |
| summary | three options are available for the numerical variable to be displayed; If median, median with min and max is calculated. If median.iq, median with 25 and 75 percentiles is calculated. If mean, mean with its standard deviation is calculated. Default is "median". |
| vargroup | a variable by which data is staratified |
| vargroup.lab | a vector of grouping labels for vargroup in the table |
| displaytot | logical; If TRUE, additional column for the whole cohort is included and default is TRUE. |
| chisqtest | logical for categorical variable; If TRUE, Chisquare test is performed. If FALSE, Fisher's exact test is performed and default is FALSE. |
| ttest | logical for numerical variable; If TRUE, T-test is performed. If FALSE, Wilcoxon rank-sum test is performed and default is FALSE. |

| | |
|---|---|
| useNA | option whether or not NULL value is displayed for the categorical variable in the table. If TRUE, character in argument na is displayed for NULL value with its percentage. Default is FALSE. |
| na | character to be displayed for NULL value if useNA is TRUE. Default is "N/A". |
| col1st | character label displayed in the 1st cell in the table |

## Value

summary matrix with calculated baseline characteristics by group with P values from selected statistical tests

## Examples

```
mtcars$vs <- as.factor(mtcars$vs)
chrtab.by(variable=c("mpg","gear"),type=c("num","cat"),
          label=c("MPG", "Gear"), data=mtcars,
          summary="median", vargroup="vs",
          chisqtest=FALSE, ttest=FALSE,
          useNA=FALSE, col1st="")
```

---

# chrtab.by.3group *Create Baseline Characteristics Table by three Groups*

---

## Description

The chrtab.by function takes data and creates a table for baseline characteristics stratified by three groups. Both categorical and numerical variables are included and analyzed together. P values will be bolded in the Markdown document if it is less than 0.05.

## Usage

```
chrtab.by.3group(
  variable,
  type,
  label,
  data,
  digits = 2,
  summary = "median",
  vargroup,
  vargroup.lab = NULL,
  displaytot = TRUE,
  chisqtest = FALSE,
  anova = FALSE,
  useNA = FALSE,
  na = "N/A",
  col1st = ""
)
```

### Arguments

| | |
|---|---|
| variable | a vector of variables |
| type | a vector of types either categorical or numerical ("cat" or "num") |
| label | a vector of labels shown in the table |
| data | data frame dataset |
| digits | number of decimal points for numerical variable |
| summary | three options are available for the numerical variable to be displayed; If median, median with min and max is calculated. If median.iq, median with 25 and 75 percentiles is calculated. If mean, mean with its standard deviation is calculated. Default is "median". |
| vargroup | a variable by which data is staratified |
| vargroup.lab | a vector of grouping labels for vargroup in the table |
| displaytot | logical; If TRUE, additional column for the whole cohort is included and default is TRUE. |
| chisqtest | logical for categorical variable; If TRUE, Chisquare test is performed. If FALSE, Fisher's exact test is performed and default is FALSE. |
| anova | logical for numerical variable; If TRUE, anova test is performed. If FALSE, Kruskal-Wallis test is performed and default is FALSE. |
| useNA | option whether or not NULL value is displayed for the categorical variable in the table. If TRUE, character in argument na is displayed for NULL value with its percentage. Default is FALSE. |
| na | character to be displayed for NULL value if useNA is TRUE. Default is "N/A". |
| col1st | character label displayed in the 1st cell in the table |

### Value

summary matrix with calculated baseline characteristics by group with P values from selected statistical tests

### Examples

```
mtcars$cyl <- as.factor(mtcars$cyl)
chrtab.by.3group(variable=c("mpg","gear"),type=c("num","cat"),
                 label=c("MPG", "Gear"), data=mtcars, summary="median",
                 vargroup="cyl", chisqtest=FALSE, anova=FALSE,
                 useNA=FALSE, col1st="")
```

---

## mul.cox.reg *Create Multivariable Cox PH Regression Table*

---

### Description

The function creates a result table for multivariable Cox PH regression. veteran dataset in the survival package is employed as an example data.

## Usage

```
mul.cox.reg(time, status, covariate, label, type, reflevel = NULL, data)
```

## Arguments

| | |
|---|---|
| time | a variable for time to event |
| status | a variable for event (or censoring) indicator (1 indicates event, 0 is censored) |
| covariate | a vector of variables included in the multivariable analysis |
| label | a vector of labels shown in the table |
| type | a vector of types either categorical or numerical ("cat" or "num") |
| reflevel | a vector of reference levels for categorical variables. NA is used for numerical variable. |
| data | data frame dataset |

## Value

matrix with estimates of coefficient, HR, and P-value

## Examples

```
library(survival)
data(veteran)
df <- veteran
mul.cox.reg(time="time", status="status",
            covariate=c("age", "trt","celltype"),
            label=c("Age", "Treatment", "Celltype"),
            type=c("num","cat","cat"),
            reflevel=c(NA, "1","squamous"),
            data=df)
```

---

# mul.linear.reg *Create Multivariable Linear Regression Table*

---

## Description

The function creates a result table of multivariable linear regression.

## Usage

```
mul.linear.reg(outcome, covariate, label, type, reflevel = NULL, data)
```

## Arguments

| | |
|---|---|
| outcome | a continous outcome variable |
| covariate | a vector of variables included in the multivariable linear analysis |
| label | a vector of labels shown in the table for covariates |
| type | a vector of types either categorical or numerical ("cat" or "num") |
| reflevel | a vector of reference levels for categorical variables. NA is used for continuous variable. |
| data | data frame dataset |

## Value

matrix with estimates of coefficients and P-value

## Examples

```
# Use mtcars dataset for example
df <- mtcars
df$mpg.cat <- ifelse(df$mpg > 18, 1, 0)

# Create variable, label, type, and reference information
r1 <- c("hp", "Horse power", "num", NA)
r2 <- c("wt", "Weight", "num", NA)
r3 <- c("gear", "Gear", "cat", "3")
input  <- rb(3)

mul.linear.reg(outcome="mpg",
               covariate=input[,"variable"],
               label=input[,"label"],
               type=input[,"type"],
               reflevel=input[,"ref"],
               data=df
               )
```

---

# mul.logistic.reg *Create Multivariable Logistic Regression Table*

---

## Description

The function creates a result table of multivariable logistic regression.

## Usage

```
mul.logistic.reg(
  outcome,
  covariate,
  label,
  type,
  reflevel = NULL,
  data,
  Odds.ratio = TRUE
)
```

## Arguments

| | |
|---|---|
| outcome | a variable for event indicator (1 indicates event, 0 is censored) |
| covariate | a vector of varaibles included in the univariable logistic analysis |
| label | a vector of labels shown in the table for covariates |
| type | a vector of types either categorical or continuous ("cat" or "num") |
| reflevel | a vector of reference levels for categorical variables. NA is used for continuous variable. |

| | |
|---|---|
| data | data frame dataset |
| Odds.ratio | logical; if TRUE, odds ratio result is included. If FALSE, log odds ratio result is included and default is TRUE. |

## Value

matrix with estimates of coefficient, OR, and P-value

## Examples

```
# Use mtcars dataset for example
df <- mtcars
df$mpg.cat <- ifelse(df$mpg > 18, 1, 0)

# Create variable, label, type, and reference information
r1 <- c("hp", "Horse power", "num", NA)
r2 <- c("wt", "Weight", "num", NA)
r3 <- c("gear", "Gear", "cat", "3")
input  <- rb(3)

mul.logistic.reg(outcome="mpg.cat",
                 covariate=input[,"variable"],
                 label=input[,"label"],
                 type=input[,"type"],
                 reflevel=input[,"ref"],
                 data=df,
                 Odds.ratio=TRUE
                 )
```

---

# rb *Rowbind Vectors of Input*

---

## Description

The function combines vectors of input by row-wise, where vector is composed of variable, label, type, and reference level.

## Usage

```
rb(x)
```

## Arguments

| | |
|---|---|
| x | Number of vectors to be combined |

## Value

A matrix with following columns c(variable, label, type, reference) or c(variable, label, type, reference, order)

## Examples

```
r1 <- c("mpg","MPG","num",NA,1)
r2 <- c("gear","Gear","cat","3",2)
rb(2)
```

uni.cox.reg *Create Univariable Cox PH Regression Table*

## Description

The function creates a result table for univariable Cox PH regression. `veteran` dataset in the `survival` package is employed as an example data.

## Usage

```
uni.cox.reg(time, status, covariate, label, type, reflevel = NULL, data)
```

## Arguments

| | |
|---|---|
| `time` | a variable for time to event |
| `status` | a variable for event (or censoring) indicator (1 indicates event, 0 is censored) |
| `covariate` | a vector of variables included in the univariable analysis |
| `label` | a vector of labels shown in the table |
| `type` | a vector of types either categorical or numerical (`"cat"` or `"num"`) |
| `reflevel` | a vector of reference levels for categorical variables. NA is used for numerical variable. |
| `data` | data frame dataset |

## Value

matrix with estimates of coefficient, HR, and P-value

## Examples

```
library(survival)
data(veteran)
df <- veteran
uni.cox.reg(time="time", status="status",
            covariate=c("age", "trt","celltype"),
            label=c("Age", "Treatment", "Celltype"),
            type=c("num","cat","cat"),
            reflevel=c(NA, "1","squamous"),
            data=df)
```

`uni.linear.reg` *Create Univariable Linear Regression Table*

## Description

The function creates a result table of univariable linear regression.

## Usage

```
uni.linear.reg(outcome, covariate, label, type, reflevel = NULL, data)
```

## Arguments

| | |
|---|---|
| `outcome` | a continous outcome variable |
| `covariate` | a vector of variables included in the univariable linear analysis |
| `label` | a vector of labels shown in the table for covariates |
| `type` | a vector of types either categorical or numerical ("`cat`" or "`num`") |
| `reflevel` | a vector of reference levels for categorical variables. `NA` is used for continuous variable. |
| `data` | data frame dataset |

## Value

matrix with estimates of coefficients and P-value

## Examples

```
# Use mtcars dataset for example
df <- mtcars
df$mpg.cat <- ifelse(df$mpg > 18, 1, 0)

# Create variable, label, type, and reference information
r1 <- c("hp", "Horse power", "num", NA)
r2 <- c("wt", "Weight", "num", NA)
r3 <- c("gear", "Gear", "cat", "3")
input  <- rb(3)

uni.linear.reg(outcome="mpg",
               covariate=input[,"variable"],
               label=input[,"label"],
               type=input[,"type"],
               reflevel=input[,"ref"],
               data=df
               )
```

`uni.logistic.reg` *Create Univariable Logistic Regression Table*

## Description

The function creates a result table of univariable logistic regression.

## Usage

```
uni.logistic.reg(
  outcome,
  covariate,
  label,
  type,
  reflevel = NULL,
  data,
  Odds.ratio = TRUE
)
```

## Arguments

| | |
|---|---|
| `outcome` | a variable for event indicator (1 indicates event, 0 is censored) |
| `covariate` | a vector of varaibles included in the univariable logistic analysis |
| `label` | a vector of labels shown in the table for covariates |
| `type` | a vector of types either categorical or continuous ("`cat`" or "`num`") |
| `reflevel` | a vector of reference levels for categorical variables. `NA` is used for continuous variable. |
| `data` | data frame dataset |
| `Odds.ratio` | logical; if `TRUE`, odds ratio result is included. If `FALSE`, log odds ratio result is included and default is `TRUE`. |

## Value

matrix with estimates of coefficient, OR, and P-value

## Examples

```
# Use mtcars dataset for example
df <- mtcars
df$mpg.cat <- ifelse(df$mpg > 18, 1, 0)

# Create variable, label, type, and reference information
r1 <- c("hp", "Horse power", "num", NA)
r2 <- c("wt", "Weight", "num", NA)
r3 <- c("gear", "Gear", "cat", "3")
input  <- rb(3)

uni.logistic.reg(outcome="mpg.cat",
                 covariate=input[,"variable"],
                 label=input[,"label"],
                 type=input[,"type"],
```

```
reflevel=input[,"ref"],
data=df,
Odds.ratio=TRUE
)
```

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