

Package ‘CBCgrps’

July 27, 2018

Type Package

Title Compare Baseline Characteristics Between Groups

Version 2.3

Date 2018-07-27

Author Zhongheng Zhang,
Sir Run-Run Shaw hospital,
Zhejiang university school of medicine

Maintainer Zhongheng Zhang <zh_zhang1984@zju.edu.cn>

Depends R (>= 3.2.0), nortest (>= 1.0-4)

Description Compare baseline characteristics between two or more groups. The variables being compared can be factor and numeric variables. The function will automatically judge the type and distribution of the variables, and make statistical description and bivariate analysis.

License GPL-2

NeedsCompilation no

Repository CRAN

Date/Publication 2018-07-27 08:20:02 UTC

R topics documented:

CBCgrps2.0-package	2
df	2
multigrps	3
twogrps	5
Index	8

CBCgrps2.0-package *Compare Baseline Characteristics Between Groups*

Description

The package aims to automate the process of comparing Baseline Characteristics between groups.

Details

The DESCRIPTION file: In clinical studies employing electronic medical records, the variables to be investigated are usually large in number. It is sometimes cumbersome to compare these variables between two or more groups one by one. I design this package to automate the process of statistical description and bivariate statistical inference.

Author(s)

Zhongheng Zhang Department of emergency medicine, Sir Run-Run Shaw Hospital, Zhejiang University School of Medicine, Hangzhou, 310016, China. <zh_zhang1984@zju.edu.cn> Maintainer: Zhongheng Zhang

References

Zhang Z. Univariate description and bivariate statistical inference: the first step delving into data. *Ann Transl Med.* 2016 Mar;4(5):91.

See Also

No ther reference.

Examples

```
data(df)
a<-twogrps(df,"mort")
```

df *simulated dataset as a working example*

Description

A data frame with 1000 observations on the following 7 variables.

Usage

```
data("df")
```

Format

A data frame with 1000 observations on the following 7 variables.

crp a numeric vector, C-reactive protein measured in mg/l

hb a numeric vector, hemoglobin

ddimer a numeric vector

wbc a numeric vector, white blood cell

comorbid a factor with levels cirrhosis COPD diabetes heartfailure hypertension renalfailure stroke

sex a factor with levels female male

mort a factor with levels alive dead

Details

The dataset is generated as a working example without clinical relevance.

Source

Simulated dataset without sources.

References

simulated dataset without reference.

Examples

```
data(df)
## maybe str(df) ; plot(df) ...
```

multigrps

Compare Baseline Characteristics between three or more groups

Description

The main function of the CBCgrps package.

Usage

```
multigrps(df, gvar, p.rd = 3, normtest = "yes", norm.rd = 2,
sk.rd = 2, tabNA = "no", cat.rd = 0, maxfactorlevels = 30,
minfactorlevels = 10, sim = FALSE, workspace = 2e+05)
```

Arguments

<code>df</code>	The data frame on which statistical description and inference are performed.
<code>gvar</code>	The group variable.
<code>p.rd</code>	Decimal space of p value to be displayed.
<code>normtest</code>	Whether test for normal distribution is performed or not. "yes" for turning on the normality test and "no" for not testing normality.
<code>norm.rd</code>	Decimal space of normally distributed numeric variables to be displayed.
<code>sk.rd</code>	Decimal space of skewed numeric variables to be displayed.
<code>tabNA</code>	Whether categorical variables with NA be displayed or not. "no" to be omitted, "ifany" to be displayed. The default value is "no".
<code>cat.rd</code>	Decimal space of categorical variables (the proportion) to be displayed.
<code>maxfactorlevels</code>	The maximum levels for factor variables, the default is 30. The argument is used to avoid treating date or time variables as factor variables.
<code>minfactorlevels</code>	If a numeric variable has only several values, it is treated as categorical variable. The default value is 10.
<code>sim</code>	a logical indicating whether to compute p-values by Monte Carlo simulation, in larger than 2 by 2 tables. The default is FALSE.
<code>workspace</code>	If the <code>fisher.test()</code> function requires more workspace, it can be defined here. The default is workspace equals to $2e+05$.

Details

The function compares differences in categorical and continuous variables between three or more groups. The function automatically judges the distribution of the continuous variable and use appropriate description for them. Chi-square test is used for categorical data. Analysis of variance is used for normally distributed numeric data. Kruskal-Wallis rank sum test is used for non-normally distributed data. It is common that some categorical variables contain numeric or integer values. For example, the gender variable may contain values 1 and 2, representing male and female respectively. Such a variable can be identified by counting the number of integer values. Thus, the `minfactorlevels` argument is used to define the minimum value for a variable to be considered as numeric variable. For some large dataset, the normality test is extremely sensitive that a small deviation from normal distribution will lead to the rejection of the null hypothesis of normality. In such a circumstance, users may opt to switch off the normality test. Setting "yes" in the `normtest` argument for turning on the normality test and "no" for not testing normality.

Value

<code>table</code>	The table with string values. The mean and standard error are put in a single cell, and connected by plus and minus symbol.
<code>table.norm</code>	The table contains only normally distributed numeric variables. Mean and standard deviation are put in separate cells
<code>table.skew</code>	The table contains only skewed numeric variables. Median and interquartile range are put in separate cells

table.cat	The table contains only factor variables. Number and proportion are put in separate cells
g1	level of group 1
g2	level of group 2

Note

No further notes

Author(s)

Zhongheng Zhang Department of emergency medicine, Sir Run-Run Shaw Hospital, Zhejiang University School of Medicine, Hangzhou, 310016, China. <zh_zhang1984@zju.edu.cn>

References

Myles Hollander and Douglas A. Wolfe (1973), Nonparametric Statistical Methods. New York: John Wiley&Sons. Pages 115-120. Zhang Z. Univariate description and bivariate statistical inference: the first step delving into data. *Ann Transl Med.* 2016 Mar;4(5):91.

See Also

No other reference

Examples

```
data(df)
b<-multigrps(df,"comorbid")
```

twogrps

Compare Baseline Characteristics between two groups

Description

The main function of the CBCgrps package. The function compares differences in categorical and continuous variables between two groups. The function automatically judges the distribution of the continuous variable and use appropriate description for them. Wilcoxon rank sum test is employed for non-normal data.

Usage

```
twogrps(df, gvar, p.rd = 3, normtest = "yes", norm.rd = 2,
sk.rd = 2, tabNA = "no", cat.rd = 0, maxfactorlevels = 30,
minfactorlevels = 10, sim = FALSE, workspace = 2e+05)
```

Arguments

<code>df</code>	The data frame on which statistical description and inference are performed.
<code>gvar</code>	The group variable.
<code>p.rd</code>	Decimal space of p value to be displayed.
<code>normtest</code>	Whether test for normal distribution is performed or not. For some large dataset, the normality test is extremely sensitive that a small deviation from normal distribution will lead to the rejection of the null hypothesis of normality. In such a circumstance, users may opt to switch off the normality test. "yes" for turning on the normality test and "no" for not testing normality.
<code>norm.rd</code>	Decimal space of normally distributed numeric variables to be displayed.
<code>sk.rd</code>	Decimal space of skewed numeric variables to be displayed.
<code>tabNA</code>	Whether categorical variables with NA be displayed or not. "no" to be omitted, "ifany" to be displayed. The default value is "no".
<code>cat.rd</code>	Decimal space of categorical variables (the proportion) to be displayed.
<code>maxfactorlevels</code>	The maximum levels for factor variables, the default is 30. The argument is used to avoid treating date or time variables as factor variables.
<code>minfactorlevels</code>	If a numeric variable has only several values, it is treated as categorical variable. The default value is 10.
<code>sim</code>	A logical indicating whether to compute p-values by Monte Carlo simulation, in larger than 2 by 2 tables. The default is FALSE.
<code>workspace</code>	If the <code>fisher.test()</code> function requires more workspace, it can be defined here. The default is <code>workspace=2e+05</code> .

Details

It is common that some categorical variables contain numeric or integer values. For example, the gender variable may contain values 1 and 2, representing male and female respectively. Such a variable can be identified by counting the number of integer values. Thus, the `minfactorlevels` argument is used to define the minimum value for a variable to be considered as numeric variable.

Value

<code>table</code>	The table with string values. The mean and standard error are put in a single cell, and connected by plus and minus symbol.
<code>table.norm</code>	The table contains only normally distributed numeric variables. Mean and standard deviation are put in separate cells
<code>table.skew</code>	The table contains only skewed numeric variables. Median and interquartile range are put in separate cells
<code>table.cat</code>	The table contains only factor variables. Number and proportion are put in separate cells
<code>g1</code>	level of group 1
<code>g2</code>	level of group 2

Note

No further notes

Author(s)

Zhongheng Zhang Department of emergency medicine, Sir Run-Run Shaw Hospital, Zhejiang University School of Medicine, Hangzhou, 310016, China. <zh_zhang1984@zju.edu.cn>

References

Zhang Z. Univariate description and bivariate statistical inference: the first step delving into data. *Ann Transl Med.* 2016 Mar;4(5):91.

See Also

No other reference

Examples

```
data(df)
a<-twogrps(df,"mort")
```

Index

- *Topic **Compare**
 - [twogrps](#), [5](#)
 - *Topic **baseline**
 - [multigrps](#), [3](#)
 - [twogrps](#), [5](#)
 - *Topic **bivariate analysis; statistical description**
 - [CBCgrps2.0-package](#), [2](#)
 - *Topic **compare**
 - [multigrps](#), [3](#)
 - *Topic **datasets**
 - [df](#), [2](#)
- [CBCgrps \(CBCgrps2.0-package\)](#), [2](#)
[CBCgrps2.0-package](#), [2](#)
- [df](#), [2](#)
- [multigrps](#), [3](#)
- [twogrps](#), [5](#)