Package 'wcep'

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Type Package

Title Survival analysis for Weighted Composit EndPoints

Version 1.0.0

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Description More about what it does (maybe more than one line)
 Use four spaces when indenting paragraphs within the Description.

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Encoding UTF-8

LazyData true

Depends R (>= 3.6.0)

Imports coin (>= 1.3-1),
 dplyr (>= 0.8.3),
 graphics (>= 3.6.1),
 grDevices (>= 3.6.1),
 progress (>= 1.2.2),
 stats (>= 3.6.1),
 tidyr (>= 1.0.0)

RoxygenNote 7.0.2

Suggests testthat

Collate 'data.R'
 'nam.R'
 'plot.R'
 'wcep_core.R'
 'wcep.R'

R topics documented:

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plot.wcep   *wcep plot*

Description

Create a plot of Kaplan-Meier curve with its specified confidence iterval

Usage

```
## S3 method for class 'wcep'
plot(
  x,
  main = " ",
  type = "n",
  lty = NULL,
  lwd = NULL,
  xlab = " ",
  ylab = "Survival Probability",
  xlim = NULL,
  ylim = NULL,
  cex = NULL,
  ...
)
```

Arguments

x	is an object of class "wcep"
main	title of plot
type	type of plot
lty	line type
lwd	line width
xlab	first axis lable
ylab	second axis lable
xlim	first axis limits
ylim	second axis limits
cex	legend font size
...	other parameters of generic "plot" have no use here setOldClass("wcep")

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toyexample *Toy example*

Description

A dataset containing patient IDs, event types, event times, and gender of 100 patients

Usage

```
toyexample
```

Format

A data frame with 104 rows and 4 culomns

PTID ID number of patients

EvTp Event Types: SHK as Shock, CHF as Congestive Heart Failure, REMI as Recurrent Myocardial Infarction, DTH as Death; and N as No event

EvTm Event Time (day)

sex Gender of patients, M as Male, F as Female

@source It is a generated example based on ASSENT-3. Armstrong PW, Westerhout CM, Van de Werf F, Califf RM, Welsh RC, Wilcox RG, Bakal JA Refining clinical trial composite outcomes: an application to the Assessment of the Safety and Efficacy of a New Thrombolytic-3 (ASSENT-3) trial https://www.ncbi.nlm.nih.gov/pubmed/21570513

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wcep *Analysis of weighted composite endpoints*

Description

Analyse given data frame and return Kaplan-Meier survival probabilities together with the specified confidence interval. wcep modifies Kaplan-Meier curve by taking into account severity weights of different event. Alternative methods are Anderson Gill model and win ratio of composite outcomes.The function takes event dataset and user-specified severity weights to generate a modified Kaplan-Meier curve and comparison statistics based on the weighted composite endpoint method. The user supplies the event datast, the weights, and the factor to split on . The package will generate the weighted survival curve, confidence interval and test the differences between the two groups.

Usage

```
wcep(x, ew, alpha = 0.05, split = FALSE)
```

Arguments

x	This data frame usually has 3 columns. The first column specifies patient ID, which is a character or numeric vector, the second column is a factor with charachter values of event types. The third column is a numeric vector of event times. If split = TRUE, then the forth column is a character vector of split groups of at most two groups, like gender.
ew	This data frame has two columns. The first column specifies a character vector of event types. The second column specify weights. The naming of event types in x and ew should be exactly similar.
alpha	A numeric value between 0-1 which specifies the confidence level, if it is not specified, by default is 0.05.
split	A logical value of T or F which allows to compare two groups.

References

Bakal J., Westerhout C. M., Armstrong P. W. (2015) Impact of weighted composite compared to traditional composite endpoints for the design of randomized controlled trails, Statistical Methods in Medicine Research Vol. 24(6) 980-988

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See Also

coxph for Anderson Gill model

Examples

```
data(toyexample)
#event weights
ew <- data.frame(event = c('CHF','DTH','SHK','REMI'), weight = c(0.3,1,0.5,0.2))
res1 <- wcep(toyexample, ew)
str(res1)
res1$survival_probabilities
plot(res1)
#comparing two genders
res2 <- wcep(toyexample, ew, split=TRUE)
plot(res2)
#wilcox and t test
res2$Wilcoxontest
res2$t_test
```

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