Package 'logRank1s'

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Title Calculate Sample Size and Power for One-Sample Log-Rank Test

Version 0.0.0.9000

Description Calculate sample size and power for the one-sample log-rank test.

License GPL-3

Encoding UTF-8

LazyData true

Roxygen list(markdown = TRUE)

RoxygenNote 7.1.1

Suggests testthat, knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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R topics documented:

`power` *power calculation in one-sample log-rank test*

Description

calculate power in one-sample log-rank test

Usage

```
power(alpha = 0.05, n, ta, tf, m0, delta, k = 1)
```

Arguments

alpha	type I error rate, by default alpha = 0.05.
n	sample size
ta	length of accrual period, during which patients are recruited
tf	length of follow-up time, during which patients are monitored
m0	median survival time of the standard population or historical control, which can be obtained from previous literature or estimate directly from the standard population.
delta	hazard ratio between the sample of interest and the standard population or historical control
k	shape parameter of survival functions (by default k = 1), from the standard population or historical control.

Value

power in one-sample log-rank test

References

Wu, J. R. (2015). Sample size calculation for the one-sample log-rank test. Pharmaceutical Statistics, 14, 26–33. https://doi.org/10.1002/pst.1654

Examples

```
Power <- power(alpha = 0.05, n = 88,  ta = 5, tf = 3, m0 = 9, delta = 1/1.75, k = 1.22)
# Power = 0.803
```

SampleSize *sample size calculation in one-sample log-rank test*

Description

calculate sample size in one-sample log-rank test

Usage

```
SampleSize(alpha = 0.05, power, ta, tf, m0, delta, k = 1)
```

Arguments

alpha	type I error rate, by default alpha = 0.05
power	the desired power for the study you are planning
ta	length of accrual period, during which patients are recruited
tf	length of follow-up time, during which patients are monitored
m0	median survival time of the standard population or historical control, which can be obtained from previous literature or estimated directly from the standard population.

delta	hazard ratio between the sample of interest and the standard population or historical control.
k	shape parameter of survival functions (by default k = 1), can be obtained from the standard population or historical control.

Value

sample size in one-sample log-rank test, depends on the desired power

References

Wu, J. R. (2015). Sample size calculation for the one-sample log-rank test. Pharmaceutical Statistics, 14, 26–33. https://doi.org/10.1002/pst.1654

Examples

```
n <- SampleSize(alpha = 0.05, power = 0.8, ta = 5, tf = 3, m0 = 9, delta = 1/1.75, k = 1.22)
# n = 88
```

Simulation *empirical type I error and power*

Description

calculate empirical type I error and/or empirical power in one-sample log-rank test via simulation

Usage

```
Simulation(n, parameter, B = 1000, ta, tf, m0, delta, k = 1)
```

Arguments

n	sample size
parameter	logical value, if TRUE then calculate empirical alpha, if FALSE calculate empirical power
B	number of iterations used in simulation (by default B = 1000)
ta	length of accrual period, during which patients are recruited
tf	length of follow-up time, during which patients are monitored
m0	median survival time of the standard population or historical control
delta	hazard ratio between the sample of interest and the standard population or historical control
k	shape parameter of survival functions (by default k = 1) from the standard population or historical control

Value

empirical type I error or empirical power in one-sample log-rank test

References

Wu, J. R. (2015). Sample size calculation for the one-sample log-rank test. Pharmaceutical Statistics, 14, 26–33. https://doi.org/10.1002/pst.1654

Examples

```
a <- Simulation(n = 534, parameter = TRUE, B = 10000, ta = 3, tf = 1,
m0 = 1, delta = 1/1.2, k = 0.1)
# parameter = T, calculate empirical type I error
# a = 0.0472

b <- Simulation(n = 534, parameter = FALSE, B = 10000, ta = 3, tf = 1,
m0 = 1, delta = 1/1.2, k = 0.1)
# parameter = T, calculate empirical power
# b = 0.9052
```

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