Package 'Rwtdttt'

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Type Package

Title Parametric Waiting Time Distribution estimation

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Description Estimation of prescription durations and treatment probability based on the parametric Waiting Time Distribution.
Pharmacoepidemiologic databases contains information on medication dispensings at pharmacies. Studies using such data typically require some estimate of duration of treatment after a dispensing (known as the prescription duration), which can be estimated using the parametric Waiting Time Distribution.

License What license is it under?

Encoding UTF-8

LazyData true

RoxygenNote 7.2.3

Imports bbmle,
dplyr,
class

R topics documented:

`dlnorm` *The Lognormal Distribution*

Description

The Lognormal Distribution

Usage

```
dlnorm(x, logitp, mu, lnsigma, log = FALSE)
```

Arguments

x	vector of quantiles
logitp	how to describe this?
mu	mean
lnsigma	log of standard deviation
log	logical; if TRUE, probabilities p are given as log(p).

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plot,wtd,ANY-method *Make WTD diagnostic plots*

Description

Make diagnostic plots showing the fit of an estimated parametric Waiting Time Distribution (WTD) with respect to the observed histogram of prescription redemptions.

Usage

```
## S4 method for signature 'wtd,ANY'
plot(object, x, y, ...)
```

Arguments

wtd	wtd object, typically result of wtdttt

---

predict,wtd-method *Make WTD predictions*

Description

Make predictions based on an estimated parametric Waiting Time Distribution (WTD) model, either the probability of a person still being in treatment or the duration of observed prescription redemptions.

Usage

```
## S4 method for signature 'wtd'
predict(
  object,
  newdata = NULL,
  type = "dur",
  distrx = NULL,
  quantile = 0.8,
  se.fit = FALSE,
  na.action = na.pass,
  ...
)
```

Arguments

wtd	a fitted object of class inheriting from "wtd"

Value

A vector of predictions

---

ranwtdttt *Fit Waiting Time Distribution with random index times*

Description

'ranwtdttt()' estimates maximum likelihood estimates for parametric Waiting Time Distribution (WTD) based on observed prescription redemptions with adjustment for covariates using one or more random index times for each individual. Reports estimates of prevalence fraction and specified percentile of inter-arrival density together with regression coefficients.

Usage

```
ranwtdttt(
  form,
  parameters = NULL,
  data,
  id,
  start,
  end,
  reverse = F,
  nsamp = 1,
  subset,
  na.action = na.pass,
  init,
  control = NULL,
  ...
)
```

Arguments

form	an object of class "formula" (or one that can be coered to that class): a symbolic description of the model to be fitted. The details of the model specification are given under 'Details'
parameters	model formulae for distribution parameters
data	an optional data frame, list or environment (or object coercible by as.data.frame to a data frame) containing the variables in the model. If not found in data, the variables are taken from environment(formula), typically the environment from which wtdttt is called.
id	the name of the variable that identifies distinct individuals
start	start of observation window
end	end of observation window
reverse	logical; Fit the reverse waiting time distribution.

subset	an optional vector specifying a subset of observations to be used in the fitting process.
na.action	a function which indicates what should happen when the data contain NAs. The default is set by the na.action setting of options, and is na.fail if that is unset. The 'factory-fresh' default is na.omit. Another possible value is NULL, no action. Value na.exclude can be useful.
init	starting values for the parameters.
control	a list of parameters for controlling the fitting process.
...	further arguments passed to other methods.

Value

wtdttt returns an object of class "wtd" inheriting from "mle".

`wtdttt` *Fit Waiting Time Distribution*

Description

'wtdttt()' estimates the maximum likelihood estimate for a parametric Waiting Time Distribution (WTD) based on observed prescription redemptions with adjustment for covariates. Reports estimates of prevalence fraction and specified percentile of inter-arrival density together with regression coefficients.

Usage

```
wtdttt(
  form,
  parameters = NULL,
  data,
  start,
  end,
  reverse = F,
  subset,
  na.action = na.pass,
  init,
  control = NULL,
  ...
)
```

Arguments

form	an object of class "formula" (or one that can be coered to that class): a symbolic description of the model to be fitted. The details of the model specification are given under 'Details'
parameters	model formulae for distribution parameters
data	an optional data frame, list or environment (or object coercible by as.data.frame to a data frame) containing the variables in the model. If not found in data, the variables are taken from environment(formula), typically the environment from which wtdttt is called.

start	start of observation window
end	end of observation window
reverse	logical; Fit the reverse waiting time distribution.
subset	an optional vector specifying a subset of observations to be used in the fitting process.
na.action	a function which indicates what should happen when the data contain NAs. The default is set by the na.action setting of options, and is na.fail if that is unset. The 'factory-fresh' default is na.omit. Another possible value is NULL, no action. Value na.exclude can be useful.
init	starting values for the parameters.
control	a list of parameters for controlling the fitting process.
...	further arguments passed to other methods.

Value

wtdttt returns an object of class "wtd" inheriting from "mle".

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