

Package: ggadjustedforest (via r-universe)

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Title Publication Ready Forest Plots for the Estimand

Version 0.1.1

Description Creates publication-quality forest plots and effect-size tables that display only the unadjusted and adjusted estimates for a user-specified exposure variable of interest, hiding confounder coefficients in accordance with causal inference principles. Supports logistic, linear, Poisson, and Cox proportional hazards models, with optional cumulative-adjustment visualisation. Built on 'ggplot2'.

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Suggests sandwich, lmttest, testthat (>= 3.0.0), knitr, rmarkdown, tidyR

VignetteBuilder knitr

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<https://kriz98.github.io/ggadjustedforest/>

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forest_table	<i>Extract a formatted effect-size table without generating a plot</i>
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Description

A convenience wrapper around gg_adjusted_forest() that returns only the formatted table. Useful when you want numeric summaries without producing a graphic.

Usage

```
forest_table(  
  data,  
  outcome,  
  exposure,  
  covariates = NULL,  
  model_type = "logistic",  
  cumulative = FALSE,  
  cumulative_labels = NULL,  
  conf_level = 0.95,  
  time_var = NULL,  
  event_var = NULL,  
  strata = NULL,  
  cluster = NULL,  
  weights = NULL,  
  table_digits = 2  
)
```

Arguments

data	A data frame containing all variables.
outcome	Character string. Name of the outcome variable (ignored for Cox models - use time_var and event_var instead).
exposure	Character string. Name of the exposure variable of interest.
covariates	Character vector of confounder/covariate names. In non-cumulative mode all covariates are added together; in cumulative mode they are added one at a time in the order supplied. Default NULL produces only the unadjusted estimate.
model_type	Character. One of "logistic" (default), "linear", "poisson", or "coxph".

cumulative	Logical. If TRUE, fit models that progressively add one covariate at a time and show each step as a separate row. Default FALSE. Important: Odds ratios ("logistic") and hazard ratios ("coxph") are non-collapsible effect measures. This means the exposure coefficient will change as covariates are added even in the complete absence of confounding, because adding covariates reduces residual variance on the latent scale. Consequently, a shifting OR or HR across sequential models cannot be cleanly attributed to confounding. For causal inference, the unadjusted vs. fully-adjusted comparison (the default) is preferred. Cumulative display is most interpretable for collapsible measures: risk differences ("linear") and risk ratios ("poisson").
cumulative_labels	Optional named character vector to rename the cumulative model labels. Names should match the auto-generated labels (e.g., "+ age", "+ age + sex"); values are the replacement labels.
conf_level	Numeric. Confidence level for intervals. Default 0.95.
time_var	Character. Name of the time variable (Cox model only).
event_var	Character. Name of the event indicator variable (Cox model only; should be 0/1 or logical).
strata	Character. Name of a stratification variable for Cox models. Default NULL.
cluster	Character. Name of a clustering variable for cluster-robust standard errors. Requires the sandwich and lme4 packages. Default NULL.
weights	Character. Name of a survey/frequency weight variable. Default NULL.
table_digits	Integer. Number of decimal places in the table. Default 2.

Value

A data frame with columns:

model Row label (e.g., "Unadjusted", "Adjusted").

estimate Point estimate (formatted character).

ci Confidence interval as a character string (e.g., "0.95–1.42").

formatted Combined estimate and CI (e.g., "1.15 (0.95–1.42)").

p.value Formatted p-value character string.

n Number of observations.

Examples

```
data(mtcars)
mtcars$am <- as.integer(mtcars$am)
forest_table(
  data      = mtcars,
  outcome   = "am",
  exposure  = "hp",
  covariates = c("wt", "cyl"),
  model_type = "logistic"
)
```

gg_adjusted_forest	<i>Forest plot of unadjusted and adjusted effects for a single exposure</i>
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Description

Creates a publication-quality forest plot showing only the unadjusted and adjusted (or cumulatively adjusted) effect estimates for a specified exposure variable, hiding confounder coefficients in accordance with causal inference principles.

Usage

```
gg_adjusted_forest(
  data,
  outcome,
  exposure,
  covariates = NULL,
  model_type = "logistic",
  cumulative = FALSE,
  cumulative_labels = NULL,
  effect_label = NULL,
  title = NULL,
  ref_line = NULL,
  point_size = 4,
  point_shape = 15,
  line_size = 0.7,
  color = "black",
  colour = NULL,
  vline_color = "grey50",
  vline_linetype = "dashed",
  x_limits = NULL,
  x_breaks = NULL,
  log_scale = TRUE,
  conf_level = 0.95,
  time_var = NULL,
  event_var = NULL,
  strata = NULL,
  cluster = NULL,
  weights = NULL,
  show_table = TRUE,
  table_digits = 2
)
```

Arguments

data	A data frame containing all variables.
outcome	Character string. Name of the outcome variable (ignored for Cox models - use time_var and event_var instead).

exposure	Character string. Name of the exposure variable of interest.
covariates	Character vector of confounder/covariate names. In non-cumulative mode all covariates are added together; in cumulative mode they are added one at a time in the order supplied. Default NULL produces only the unadjusted estimate.
model_type	Character. One of "logistic" (default), "linear", "poisson", or "coxph".
cumulative	Logical. If TRUE, fit models that progressively add one covariate at a time and show each step as a separate row. Default FALSE. Important: Odds ratios ("logistic") and hazard ratios ("coxph") are non-collapsible effect measures. This means the exposure coefficient will change as covariates are added even in the complete absence of confounding, because adding covariates reduces residual variance on the latent scale. Consequently, a shifting OR or HR across sequential models cannot be cleanly attributed to confounding. For causal inference, the unadjusted vs. fully-adjusted comparison (the default) is preferred. Cumulative display is most interpretable for collapsible measures: risk differences ("linear") and risk ratios ("poisson").
cumulative_labels	Optional named character vector to rename the cumulative model labels. Names should match the auto-generated labels (e.g., "+ age", "+ age + sex"); values are the replacement labels.
effect_label	Character. X-axis label. Defaults to "Odds Ratio (95 % CI)" for logistic, "Risk Ratio (95 % CI)" for Poisson, "Hazard Ratio (95 % CI)" for Cox, and "Coefficient (95 % CI)" for linear.
title	Character. Plot title. Default NULL (no title).
ref_line	Numeric. Position of the vertical reference line. Defaults to 1 for ratio models and 0 for linear.
point_size	Numeric. Size of the point estimate symbol. Default 4.
point_shape	Integer. ggplot2 shape code. Default 15 (filled square).
line_size	Numeric. Thickness of the CI lines. Default 0.7.
color	Character. Colour for points and CI lines. Default "black".
colour	Alias for color (British English spelling).
vline_color	Character. Colour of the reference line. Default "grey50".
vline_linetype	Character. Linetype of the reference line. Default "dashed".
x_limits	Numeric vector of length 2. Manual x-axis limits. Default NULL (automatic).
x_breaks	Numeric vector. Manual x-axis break positions. Default NULL (automatic).
log_scale	Logical. Use log scale on the x-axis for ratio models. Default TRUE.
conf_level	Numeric. Confidence level for intervals. Default 0.95.
time_var	Character. Name of the time variable (Cox model only).
event_var	Character. Name of the event indicator variable (Cox model only; should be 0/1 or logical).
strata	Character. Name of a stratification variable for Cox models. Default NULL.
cluster	Character. Name of a clustering variable for cluster-robust standard errors. Requires the sandwich and lmtest packages. Default NULL.

weights	Character. Name of a survey/frequency weight variable. Default NULL.
show_table	Logical. Combine the forest plot with a formatted table panel (using patchwork). Default TRUE.
table_digits	Integer. Number of decimal places in the table. Default 2.

Value

An object of class `ggadjustedforest` (a list) with components:

`plot` The combined **ggplot2/patchwork** plot object. When `show_table = FALSE` this is just the forest plot.

`table` A data frame with columns `model`, `estimate`, `conf.low`, `conf.high`, `p.value`, and `n`.

`formatted_table` A data frame with a formatted column containing strings like "1.23 (1.01-1.55)".

Examples

```
# Cox proportional hazards – rotterdam breast cancer data

data(cancer, package = "survival")
df <- rotterdam[, c("hormon", "age", "size", "grade", "nodes", "death", "dtime")]
df <- df[complete.cases(df), ]
df$er10 <- rotterdam$er[complete.cases(rotterdam[,
  c("hormon", "age", "size", "grade", "nodes", "death", "dtime")])] / 10
result <- gg_adjusted_forest(
  data      = df,
  outcome   = "death",
  exposure  = "hormon",
  covariates = c("age", "size", "grade", "nodes", "er10"),
  model_type = "coxph",
  time_var  = "dtime",
  event_var  = "death",
  title     = "Effect of Hormonal Therapy on Survival (Rotterdam)"
)
result$table
```

`plot.ggadjustedforest` *Plot method for ggadjustedforest objects*

Description

Plot method for `ggadjustedforest` objects

Usage

```
## S3 method for class 'ggadjustedforest'
plot(x, ...)
```

Arguments

x	An object of class <code>ggadjustedforest</code> .
...	Additional arguments (currently ignored).

Value

Invisibly returns the plot object.

`print.ggadjustedforest`

Print method for ggadjustedforest objects

Description

Print method for `ggadjustedforest` objects

Usage

```
## S3 method for class 'ggadjustedforest'  
print(x, ...)
```

Arguments

x	An object of class <code>ggadjustedforest</code> .
...	Additional arguments (currently ignored).

Value

Invisibly returns x.

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