

Package: BWMR (via r-universe)

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Title Bayesian Weighted Mendelian Randomization (BWMR)

Version 0.1.1

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Description Inference the causality based on BWMR method.

License GPL (>= 3)

Depends R (>= 3.5.0)

Imports ggplot2

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Repository <https://mrcieu.r-universe.dev>

RemoteUrl <https://github.com/remlapmot/BWMR>

RemoteRef suggestions

RemoteSha 83198d5634017f9c9d75986b20f3324d7051ef5c

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 BWMR

Inference the causality based on BWMR method

Description

Estimate the causal effect between the exposure and the outcome.

Usage

```
BWMR(gammahat, Gammahat, sigmaX, sigmaY, alpha = 100, sqsigma0 = (1e6)^2)
```

Arguments

gammahat	SNP-exposure effects.
Gammahat	SNP-outcome effects.
sigmaX	Standard errors of SNP-exposure effects.
sigmaY	Standard errors of SNP-outcome effects.
alpha	Value of alpha.
sqsigma0	Value of sqsigma0.

Details

BWMR obtain the causal effect based on summary statistics.

Value

mu_beta	Estimate of parameter beta.
se_beta	Estimate of the standard error of parameter beta.
P_value	P_value.
plot1	Plot of Data with Standard Error Bar.
plot2	Trace Plot of Logarithm of Approximate Data Likelihood.
plot3	Estimate of Weight of Each Data Point.
plot4	Plot of Weighted Data and Its Regression Result.

Author(s)

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Examples

```
library(BWMR)

data(ExampleData)

MRres <- BWMR(ExampleData$beta.exposure, ExampleData$beta.outcome,
              ExampleData$se.exposure, ExampleData$se.outcome)

beta.hat <- MRres$beta
beta.se <- MRres$se_beta
P_value <- MRres$P_value

# Plot1: Plot of Data with Standard Error Bar
plot1 <- MRres$plot1
plot1

# Plot2: Trace Plot of Logarithm of Approximate Data Likelihood
plot2 <- MRres$plot2
plot2

# Plot3: Estimate of Weight of Each Data Point
plot3 <- MRres$plot3
plot3

# Plot4: Plot of Weighted Data and Its Regression Result
plot4 <- MRres$plot4
plot4
```

ExampleData

Example Mendelian randomization genotype summary level dataset

Description

An example Mendelian randomization dataset.

Usage

ExampleData

Format

who:

A data frame with 76 rows and 5 columns:

SNP SNP genotype

beta.exposure SNP-exposure estimates

beta.outcome SNP-outcome estimates

se.exposure Standard errors of the SNP-exposure estimates

se.outcome Standard errors of the SNP-outcome estimates

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