Package: mapnhanespa (via r-universe)

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Title Map Quantiles for Physical Activity from 'NHANES'

Version 0.1.0

Description Maps physical activity from the National Health and Nutrition Examination Survey ('NHANES') study into population-based quantiles.

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Encoding UTF-8

Roxygen list(markdown = TRUE)

Depends R (>= 3.5)

LazyData true

LazyDataCompression xz

URL https://github.com/jhuwit/mapnhanespa

BugReports https://github.com/jhuwit/mapnhanespa/issues

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

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VignetteBuilder knitr

Imports dplyr, magrittr, purrr, survey

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Repository https://jhuwit.r-universe.dev

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RemoteRef HEAD

RemoteSha 6b8f1aa45e7d2c94f20ff096397a9ea6a817add6

Contents

`map_nhanes_pa_quantiles`

Map physical activity values to NHANES population quantiles

Description

`map_nhanes_pa_quantiles()` adds a population-level quantile column to a participant-level data frame. Quantiles are evaluated from NHANES accelerometer cumulative distribution functions stratified by age category, sex/gender, measure, and optionally survey wave.

Usage

```
map_nhanes_pa_quantiles(
  data,
  id = NULL,
  age = "age",
  sex = "sex",
  measure = "measure",
  value = "value",
  wave = NULL,
  age_category = NULL,
  quantile_col = "nhanes_quantile"
)
```

Arguments

`data`	A data frame with one row per participant-measure observation.
`id`	Optional participant identifier column name. The column is checked when supplied, but otherwise left unchanged.
`age`, `sex`, `measure`, `value`	Column names in `data` containing age in years, sex/gender, physical activity measure, and observed value. Set `age = NULL` to use the age-overall CDFs. Set `sex = NULL` to use the sex/gender-overall CDFs. Setting both to `NULL` uses the overall CDF across both dimensions.
`wave`	Optional NHANES wave column name or scalar value. Supported values are `7`, `8`, `"2011-2012"`, and `"2013-2014"`. If `NULL`, the combined wave CDFs are used.

age_category	Optional column name containing NHANES age categories such as "[20,30)" or "Overall". When supplied, it is used instead of age.
quantile_col	Name of the output quantile column.

Value

data with an added quantile column.

Examples

```
example_data <- data.frame(
  id = 1:2,
  age = c(25, 62),
  sex = c("Female", "Male"),
  measure = c("mims", "ssl_steps"),
  value = c(15000, 7500)
)

map_nhanes_pa_quantiles(example_data)

map_nhanes_pa_quantiles(example_data, sex = NULL)

map_nhanes_pa_quantiles(example_data, age = NULL, wave = "2011-2012")
map_nhanes_pa_quantiles(example_data, age = NULL, sex = NULL)
```

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nhanes_measure_data *NHANES PA data*

Description

NHANES PA data

Usage

```
nhanes_measure_data
```

Format

A data frame with 87619 rows and 9 variables:

SEQN ID variable

data_release_cycle wave/data release cycle

cat_age age category

gender sex/gender designation

wtmec4yr_adj_norm normalized weight for surveys

masked_variance_pseudo_psu PSU - sampling unit

masked_variance_pseudo_stratum sampling stratum

num_valid_days number of valid days of wear >= 1396 minutes

measure measure that was calculated

value value for the measure

Source

NHANES 2011-2012 and 2013-2014 accelerometer data.

`nhanes_pa_age_category` *Convert ages to NHANES physical activity CDF age categories*

Description

Ages are grouped into 10-year bins from `[0,10)` through `[70,80)`. Ages greater than or equal to 80 are assigned to the oldest available CDF category, `"[80,85)"`. Ages greater than 85 also map to `"[80,85)"`, with a warning by default.

Usage

```
nhanes_pa_age_category(age, warn = TRUE)
```

Arguments

`age`	Numeric age in years.
`warn`	Logical. If `TRUE`, warn when non-missing ages greater than 85 are mapped into the `"[80,85)"` category.

Value

A character vector of NHANES age category labels.

Examples

```
nhanes_pa_age_category(c(8, 25, 84, 90))
```

nhanes_pa_quantile *Evaluate a single NHANES physical activity quantile*

Description

Evaluate a single NHANES physical activity quantile

Usage

```
nhanes_pa_quantile(
  value,
  age = NULL,
  sex = NULL,
  measure,
  wave = NULL,
  age_category = NULL
)
```

Arguments

value	Observed physical activity value.
age	Age in years. Set to NULL to use the age-overall CDFs. Ignored when age_category is supplied.
sex	Sex/gender. Common values such as "M", "male", "F", and "female" are normalized. Set to NULL to use the sex/gender-overall CDFs.
measure	Physical activity measure. Supported aliases include "mims", "PAXMTSM", "ssl_steps", "scsslsteps", "steps", Verisense step aliases such as "steps_stepcount_ssl", "steps_stepcount_rf", "steps_vs_original", "steps_vs_revised", "steps_sdt", and "AC".
wave	Optional NHANES wave. Supported values are 7, 8, "2011-2012", and "2013-2014".
age_category	Optional NHANES age category such as "[20,30)" or "Overall".

Value

A numeric quantile in [0, 1], or NA_real_ when no matching CDF is available.

Examples

```
nhanes_pa_quantile(
  value = 15000,
  age = 25,
  sex = "Female",
  measure = "mims"
)

nhanes_pa_quantile(
```

```
  value = 15000,
  age = 25,
  sex = NULL,
  measure = "mims",
  wave = "2013-2014"
)
```

`precompute_nhanes_pa_cdfs` *Precompute and cache NHANES PA CDFs*

Description

Builds every supported CDF combination and stores the result in the internal cache. This covers combined and by-wave CDFs, age-specific and age-overall strata, sex/gender-specific and sex/gender-overall strata, and the overall-overall combination for each supported measure.

Usage

```
precompute_nhanes_pa_cdfs()
```

Value

Invisibly returns a list with the cached combined and by-wave tables.

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