

Package: valueEQ5D (via r-universe)

September 5, 2024

Type Package

Title Scoring EQ-5d Descriptive System

Version 0.8

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Depends R (>= 3.6)

Description EQ-5D is a standard instrument

(<<https://euroqol.org/eq-5d-instruments/>>) that measures the quality of life often used in clinical and economic evaluations of health care technologies. Both adult versions of EQ-5D (EQ-5D-3L and EQ-5D-5L) contain a descriptive system and visual analog scale. The descriptive system measures the patient's health in 5 dimensions: the 5L versions has 5 levels and 3L version has 3 levels. The descriptive system scores are usually converted to index values using country specific values sets (that incorporates the country preferences). This package allows the calculation of both descriptive system scores to the index value scores. The value sets for EQ-5D-3L are from the references mentioned in the website

<<https://euroqol.org/eq-5d-instruments/eq-5d-3l-about/valuation/>>

The value sets for EQ-5D-3L for a total of 31 countries are used for the valuation (see the user guide for a complete list of references). The value sets for EQ-5D-5L are obtained from references mentioned in the

<<https://euroqol.org/eq-5d-instruments/eq-5d-5l-about/valuation-standard-value-sets/>>

and other sources. The value sets for EQ-5D-5L for a total of 17 countries are used for the valuation (see the user guide for a complete list of references). The package can also be used to map 5L scores to 3L index values for 10 countries: Denmark, France, Germany, Japan, Netherlands, Spain, Thailand, UK, USA, and Zimbabwe. The value set and method for mapping are obtained from Van Hout et al (2012) <[doi:10.1016/j.jval.2012.02.008](https://doi.org/10.1016/j.jval.2012.02.008)>.

As per NICE 2022 guidance, the mapping can also be done using Wailoo AJ et al (2017) <doi.org/10.1016/j.jval.2016.11.006>

Mapping is done for countries: China, England/UK, Germany,

Japan, Korea, Netherlands, and Spain.

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Encoding UTF-8

LazyData true

RoxygenNote 7.2.1

Imports testthat, dplyr, IPDFFileCheck, stringr, utils

Suggests knitr, rmarkdown, covr

VignetteBuilder knitr

Config/testthat/edition 3

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

RemoteUrl <https://github.com/sheejamk/valueeq5d>

RemoteRef HEAD

RemoteSha 24a8cba859996fd8c61b38924c4362702c0dc1a8

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`.correctImplausibleOrdering`
Function to correct implausible ordering in Australian valueset for EQ-5D-3L

Description

Correcting the implausible ordering

Usage

`.correctImplausibleOrdering(scores)`

Arguments

scores , EQ-5D-3L scores as a number

Value

the value that read from the stored dataframe

Examples

`.correctImplausibleOrdering(11121)`

`check_column_exist` *Function to check the given column exists*

Description

Function to check the given column exists

Usage

`check_column_exist(column_name, data)`

Arguments

column_name a column name
data data frame

Value

0 if success -1 if failure

Examples

```
check_column_exist("age", data.frame(
  age = rep(20, 4), sex = rep("male", 4),
  stringsAsFactors = FALSE
))
```

check_scores_3L *Function to check the EQ-5D-3L scores*

Description

Function to check the EQ-5D-3L scores

Usage

```
check_scores_3L(dimen, dimen2 = NA, dimen3 = NA, dimen4 = NA, dimen5 = NA)
```

Arguments

dimen	a must input, response for EQ-5D-3L mobility or the 5 digit response, or the vector of responses, e.g. 11111, c(1, 1, 1, 1, 1) or 1
dimen2	response for EQ-5D-3L self care, or NA if the responses are given as dimensions
dimen3	response for EQ-5D-3L usual activities, or NA if the responses are given as dimensions
dimen4	response for EQ-5D-3L pain/discomfort, or NA if the responses are given as dimensions
dimen5	response for EQ-5D-3L anxiety/depression, or NA if the responses are given as dimensions

Examples

```
check_scores_3L(c(1, 2, 3, 3, 3))
check_scores_3L(1, 2, 3, 3, 3)
check_scores_3L(1, 2, 3, 2, 3)
check_scores_3L(12323)
```

check_scores_5L *Function to check the EQ-5D-5L scores*

Description

Function to check the EQ-5D-5L scores

Usage

```
check_scores_5L(dimen, dimen2 = NA, dimen3 = NA, dimen4 = NA, dimen5 = NA)
```

Arguments

dimen	a must input,response for EQ-5D-3L mobility or the 5 digit response, or the vector of responses, e.g. 11111, c(1,1,1,1,1) or 1
dimen2	response for EQ-5D-5L self care, or NA if the responses are given as dimensions
dimen3	response for EQ-5D-5L usual activities,or NA if the responses are given as dimensions
dimen4	response for EQ-5D-5L pain/discomfort, or NA if the responses are given as dimensions
dimen5	response for EQ-5D-5L anxiety/depression, or NA if the responses are given as dimensions

Examples

```
check_scores_5L(c(1, 2, 3, 5, 3))  
check_scores_5L(1, 2, 3, 4, 3)  
check_scores_5L(12323)
```

convert_number_to_digits
Function to convert a number to individual digits

Description

Function to convert a number to individual digits

Usage

```
convert_number_to_digits(this_number)
```

Arguments

this_number	a number
-------------	----------

Value

digits

Examples

```
convert_number_to_digits(234)
```

descriptive_stat_data_column

Function to return descriptive statistics, sum, no of observations, mean, mode. median, range, standard deviation and standard error

Description

Function to return descriptive statistics, sum, no of observations, mean, mode. median, range, standard deviation and standard error

Usage

```
descriptive_stat_data_column(column, column_name, nrcode = NA)
```

Arguments

column	column
column_name	the column name
nrcode	non response code corresponding to the column

Value

the descriptive statistics for success , -1 for failure

Examples

```
descriptive_stat_data_column(c(1, 2, 3, 4, NA), "scores", NA)
```

EQ5D3L_indexvalues.df *EQ-5D-3L index values (for each set of response of 3L) for different countries*

Description

EQ-5D-3L index values (for each set of response of 3L) for different countries

Usage

EQ5D3L_indexvalues.df

Format

A 243 by 38 dataframe

Note

: For testing purpose -not required by users

: VAS value for state 3333 was reported as -0.022, rather obtained -0.034 and needs to be checked with authors

: There were some implausible orderings and hard coded those only for Australian value sets

Source

Argentina: TTO - Appendix A in Augustovski et al (2009) <doi:10.1111/j.1524-4733.2008.00468.x>

Argentina: VAS - Appendix A in Augustovski et al (2009) <doi:10.1111/j.1524-4733.2008.00468.x>

Australia: Supplementary in Viney et al (2011) <doi:10.1016/j.jval.2011.04.009>

Belgium: VAS - Selected example page 209 in Cleemput et al (2010) <doi:10.1007/s10198-009-0167-0>

Brazil: Appendix 1 in Santos et al (2016) <doi:10.1177/0272989X15613521>

Canada: Supplementary material Table S2 in Bansback et al (2012) <https://doi.org/10.1371/journal.pone.0031115>

Chile: Table 4 page 1139 in Zarate et al (2011) <doi:10.1016/j.jval.2011.09.002>

China: Supplementary materials Appendix 2 in Liu et al (2014) <doi:10.1016/j.jval.2014.05.007>

Denmark: TTO - Appendix in Wittrup-Jensen et al (2009) <doi:10.1177/1403494809105287>

Denmark: VAS - Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>

Europe: VAS - Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>

Finland: VAS - Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>

France: Selected example page 61 in Chevalier et al (2013) <doi:10.1007/s10198-011-0351-x>

Germany: TTO - Selected examples Table 6 page 130 in Greiner et al (2005) <doi:10.1007/s10198-004-0264-z>

Germany: VAS - Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>

Iran: Selected example page 173 in Goudarzi et al (2019) <doi:10.1016/j.vhri.2019.01.007>
Italy: Supplementary materials Appendix 2 in Scalone et al (2013) <http://dx.doi.org/10.1016/j.jval.2013.04.008>
Japan: Tsuchiya et al (2002) <https://doi.org/10.1002/hec.673>
Korea: Selected example page 1191 in Lee et al <doi:10.1111/j.1524-4733.2009.00579.x>
Malaysia: VAS - Supplementary material Appendix 3 in Yusof et al (2019) <doi:10.1016/j.jval.2011.11.024>
Netherlands: Lamers et al <doi:10.1002/hec.1124>
New Zealand: VAS - Selected examples Table 7 column 5 page 542 in Devlin et al <doi:10.1002/hec.741>
Poland: Table 6 page 294 in Golicki et al <https://doi.org/10.1111/j.1524-4733.2009.00596.x>
Portugal: Supplementary Material 1 in Ferreira et al <doi:10.1007/s11136-013-0448-z>
Slovenia: VAS - Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>
Singapore: Selected examples in Nan Luo et al <doi:10.1007/s40273-014-0142-1>
Spain: TTO- Badia et al (2001) <doi:10.1177/0272989X0102100102>
Spain: VAS - Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>
Sri Lanka: Selected example page 1789 in Kularatna et al (2015) <doi:10.1007/s11136-014-0906-2>
Sweden: Supplementary Table 3 in Burström et al (2014) <doi:10.1007/s11136-013-0496-4>
Taiwan: Table 3 page 703 in Lee et al (2013) <http://dx.doi.org/10.1016/j.jfma.2012.12.015> #'
Thailand: Tongsiri et al (2011) <doi:10.1016/j.jval.2011.06.005>
Trinidad and Tobago: Table 5 page 66 in Bailey et al (2016) <http://dx.doi.org/10.1016/j.vhri.2016.07.010>
UK : TTO - Selected examples Table 3 page 1105 in Dolan et al (1997) <http://dx.doi.org/10.1097/00005650-199711000-00002>
UK: VAS - Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>
USA: Appendix 1 page 218 in Shaw et al (2005) <doi:10.1097/00005650-200503000-00003>
Zimbabwe: Jelsma et al (2003) <https://doi.org/10.1186/1478-7954-1-11>

EQ5D3L_tariffs_TTO.df *EQ-5D-3L tariffs using TTO for different countries*

Description

EQ-5D-3L tariffs using TTO for different countries

Usage

EQ5D3L_tariffs_TTO.df

Format

A 38 by 28 dataframe

Source

- Argentina:** Table 3 column 5 page 560 in Augustovski et al (2009) <doi:10.1111/j.1524-4733.2008.00468.x>
- Australia:** Table 4 column 6 page 933 in Viney et al (2011) <doi:10.1016/j.jval.2011.04.009>
- Brazil:** Table 2 column 8 page 21 in Santos et al (2016) <doi:10.1177/0272989X15613521>
- Canada:** Table 4 column 2 page 8 in Bansback et al (2012) <https://doi.org/10.1371/journal.pone.0031115>
- Chile:** Table 2 column 5 page 1137 in Zarate et al (2011) <doi:10.1016/j.jval.2011.09.002>
- China:** Table 4 column 4 page 603 in Liu et al (2014) <doi:10.1016/j.jval.2014.05.007>
- Denmark:** Table 4 column 2 page 463 in Wittrup-Jensen et al (2009) <doi:10.1177/1403494809105287>
- France:** Equation page 61 in Chevalier et al (2013) <doi:10.1007/s10198-011-0351-x>
- Germany:** Table 4 column 2 page 129 in Greiner et al (2005) <doi:10.1007/s10198-004-0264-z>
- Hungary:** Table 2 column 11 page 1238 in Rencz et al (2020) <doi:10.1016/j.jval.2020.03.019>
- Iran:** Table 3 column 8 page 174 in Goudarzi et al (2019) <doi:10.1016/j.vhri.2019.01.007>
- Italy:** Table 4 column 5 page 820 in Scalone et al (2013) <http://dx.doi.org/10.1016/j.jval.2013.04.008>
- Japan:** Table 4 column 1 page 41 in Tsuchiya et al (2002) <https://doi.org/10.1002/hec.673>
- South Korea:** Table 3 column 4 page 1191 in Lee et al <doi:10.1111/j.1524-4733.2009.00579.x>
- Malaysia:** Table 4 column 5 page 588 in Aryani et al <doi:10.1016/j.jval.2011.11.024>
- Netherlands:** Table 5 column 3 page 1128 in Lamers et al <doi:10.1002/hec.1124>
- Poland:** Table 5 column 2 page 293 in Golicki et al <https://doi.org/10.1111/j.1524-4733.2009.00596.x>
- Portugal:** Table 4 column 6 page 418 in Ferreira et al <doi:10.1007/s11136-013-0448-z>
- Singapore:** Equation page 504 in Nan Luoß et al <doi:10.1007/s40273-014-0142-1>
- Spain:** Table 3 column 4 page 13 in Badia et al (2001) <doi:10.1177/0272989X0102100102>
- Sri Lanka:** Table 2 column 8 page 1791 in Kularatna et al (2015) <doi:10.1007/s11136-014-0906-2>
- Sweden:** Table 2 column 8 page 436 in Burström et al (2014) <doi:10.1007/s11136-013-0496-4>
- Taiwan:** Table 2 column 4 page 702 in Lee et al (2013) <http://dx.doi.org/10.1016/j.jfma.2012.12.015> #
- Thailand:** Table 1 column 2 page 1144 (parameters like MO3 are calculated) Tongsiri et al (2011) <doi:10.1016/j.jval.2011.06.005>
- Trinidad and Tobago:** Table 4 page 65 in Bailey et al (2016) <http://dx.doi.org/10.1016/j.vhri.2016.07.010>
- UK:** Table 1 column 2 page 1103 in Dolan et al (1997) <http://dx.doi.org/10.1097/00005650-199711000-00002>
- USA:** Table 5 column 2 page 214 in Shaw et al (2005) <doi:10.1097/00005650-200503000-00003>
- Zimbabwe:** Table 5 column 3 page 7 in Jelsma et al (2003) <https://doi.org/10.1186/1478-7954-1-11>

EQ5D3L_tariffs_VAS.df *EQ-5D-3L tariffs using VAS for different countries*

Description

EQ-5D-3L tariffs using VAS for different countries

Usage

EQ5D3L_tariffs_VAS.df

Format

A 34 by 12 dataframe

Source

Argentina: Table 3 column 2 page 560 in Augustovski et al (2009) <doi:10.1111/j.1524-4733.2008.00468.x>

Belgium: Equation 2 page 208 in Cleemput et al (2010) <doi:10.1007/s10198-009-0167-0>

Denmark: Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>

Europe: Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>

Finland: Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>

Germany: Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>

Malaysia: Table 4 column 6 page S88 in Yusof et al (2019) <doi:10.1016/j.jval.2011.11.024>

New Zealand: Equation 2 page 541 in Devlin et al <doi:10.1002/hec.741>

Slovenia: Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>

Spain: Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1> (this is not shown in euroqol website) Could not get Sweden VAS values

UK: Table 2.3 page 14 in Szende et al (2014) <doi:10.1007/978-94-007-7596-1>

EQ5D5L_crosswalk_indexvalues.df

EQ-5D-5L crosswalk value sets for 10 countries

Description

EQ-5D-5L crosswalk value sets for 10 countries

Usage

EQ5D5L_crosswalk_indexvalues.df

Format

A 3125 by 11 dataframe

Note

: For testing purpose -not required by users

Source

<https://euroqol.org/eq-5d-instruments/eq-5d-5l-about/valuation-standard-value-sets/crosswalk-index-value-calculator/> (accessed on Aug 03,2019)

Van Hout et al (2012) <doi: 10.1016/j.jval.2012.02.008>.

EQ5D5L_indexvalues.df *EQ-5D-5L index values*

Description

EQ-5D-5L index values

Usage

EQ5D5L_indexvalues.df

Format

A 3125 by 22 dataframe

Note

: For testing purpose -not required by users

Source

Canada: Selected example Table A3 in Xie et al (2016) <doi:10.1097/MLR.0000000000000447>

China: Supplementary Material 1 in Luo et al (2017) <doi:10.1016/j.jval.2016.11.016>

England: Selected example Table 3 page 18 and supporting information in Devlin et al (2018) <doi:10.1002/hec.3564>

Ethiopia: Table 3 column 8 page 12 and supporting information in Welie et al (2019) <doi:10.1016/j.vhri.2019.08.475>

France: Table 3 column 2-6 page 12 and supporting information in Andrade et al (2020) <doi:10.1007/s40273-019-00876-4>

Germany: Supplementary Material 1 in Ludwig et al (2018) <doi:10.1007/s40273-018-0615-8>

Hong Kong: Selected examples Table 3 page 244 in Wong et al (2018) <doi:10.1007/s40271-017-0278-0>

Indonesia: Selected examples page 1162 in Purba et al (2017) <doi:10.1007/s40273-017-0538-9>

Ireland: Selected example Table 2 page 1348 in Hobbins et al (2016) <doi:10.1007/s40273-018-0690-x>
Japan: Shiroiwa, et al (2016) <doi:10.1016/j.jval.2016.03.1834>
Korea: Selected example page 1848 in Kim et al (2016) <doi:10.1007/s11136-015-1205-2>
Malaysia: Shafie et al (2019) <doi:10.1007/s40273-018-0758-7>
Netherlands: Versteegh et al (2016) <doi:10.1016/j.jval.2016.01.003>
Poland: Supplementary Material 3 in Golicki et al <doi:10.1007/s40273-019-00811-7>
Portugal: Ferreira1 et al (2014) <doi:10.1007/s11136-019-02226-5>
Spain: Selected examples in Table 1 in Ramos-Goñiet et al (2018) <https://doi.org/10.1016/j.jval.2017.10.023>
Taiwan: Table 3 page 10 in Lin et al (2018) <https://doi.org/10.1371/journal.pone.0209344>
Thailand: Pattanaphesaj et al (2018) <doi:10.1080/14737167.2018>
Uruguay: Augustovski et al (2016) <doi:10.1007/s11136-015-1086-4>
USA: Pickard et al (2019) <doi:10.1016/j.jval.2019.02.009>
Vietnam: Mai et al (2020) <doi:10.1007/s11136-020-02469-7>

EQ5D5L_tariffs.df

*EQ-5D-5L tariffs for different countries***Description**

EQ-5D-5L tariffs for different countries

Usage

EQ5D5L_tariffs.df

Format

A 34 by 22 data frame

Source

Canada: Table 2 column 5 page 103 in Xie et al (2016) <doi:10.1097/MLR.0000000000000447>
China: Table 4 column 4 page 667 in Luo et al (2017) <doi:10.1016/j.jval.2016.11.016>
England: Table 2 column 2 page 17 in Devlin et al (2018) <doi:10.1002/hec.3564>
Ethiopia: Table 3 column 8 page 12 in Welie et al (2019) <doi:10.1016/j.vhri.2019.08.475>
France: Table 3 column 2-6 page 12 in Andrade et al (2019) <doi:10.1007/s40273-019-00876-4>
Germany: Table column 9 page 670 in Ludwig et al (2018) <doi:10.1007/s40273-018-0615-8>
Hong Kong: Table 3 column 8 page 244 in Wong et al (2018) <doi:10.1007/s40271-017-0278-0>
Hungary: Table 3 column 14 page 1241 in Rencz et al (2020) <doi:10.1016/j.jval.2020.03.019>
Indonesia: Table 3 column 8 page 1162 in Purba et al (2017) <doi:10.1007/s40273-017-0538-9>

Ireland: Table 2 column 2 page 1348 in Hobbins et al (2016) <doi:10.1007/s40273-018-0690-x>
Japan: Table 2 column 7 page 651 in Shiroiwa, et al (2016) <doi:10.1016/j.jval.2016.03.1834>
Korea: Table 5 column 6 page 1851 in Kim et al (2016) <doi:10.1007/s11136-015-1205-2>
Malaysia: Table 2 column 9 page 720 in Shafie et al (2019) <doi:10.1007/s40273-018-0758-7>
Netherlands: Table 4 column 8 page 350 in Versteegh et al (2016) <doi:10.1016/j.jval.2016.01.003>
Poland: Table 2 column 7 in Golicki et al <doi:10.1007/s40273-019-00811-7>
Portugal: Table 3 column 4 in Ferreira1 et al (2014) <doi:10.1007/s11136-019-02226-5>
Spain: Table 1 column 9 page 5 in Ramos-Goñiet et al (2018) <https://doi.org/10.1016/j.jval.2017.10.023>
Taiwan: Table 2 column 4 page 9 in Lin et al (2018) <https://doi.org/10.1371/journal.pone.0209344>
Thailand: Table 3 column 6 page 4 in Pattanaphesaj et al (2018) <doi:10.1080/14737167.2018>
Uruguay: Table 2.3 column 5 page 29 in Augustovski et al (2016) <doi:10.1007/s11136-015-1086-4>
USA: Table 2 column 2 page 939 in Pickard et al (2019) <doi:10.1016/j.jval.2019.02.009>
Vietnam: Table 3 column 5 in Mai et al (2020) <doi:10.1007/s11136-020-02469-7>

EQ5Dmap_table3.df

EQ-5D-5L mapping 3Lto 5L values

Description

EQ-5D-5L mapping 3Lto 5L values

Usage

EQ5Dmap_table3.df

Format

A 31250 by 21 dataframe

Source

Hernandez Alava et al (2017) <doi.org/10.1016/j.jval.2016.11.006>

EQ5Dmap_table5.df *EQ-5D-5L mapping 5Lto 3L values*

Description

EQ-5D-5L mapping 5Lto 3L values

Usage

EQ5Dmap_table5.df

Format

A 31250 by 21 dataframe

Source

Hernandez Alava et al (2017) <doi.org/10.1016/j.jval.2016.11.006>

get_colno_existing_colnames

Function to return the column number for a given column name (from list of possible column names that may have used) in a data frame

Description

Function to return the column number for a given column name (from list of possible column names that may have used) in a data frame

Usage

```
get_colno_existing_colnames(column_names, data)
```

Arguments

column_names column names in a data frame
data a data frame

Value

the column number

Examples

```
get_colno_existing_colnames(c("age"), data.frame(age = rep(20, 4),  
gender = rep("male", 4)))
```

`get_column_no_colnames`*Function to return the column number for column name*

Description

Function to return the column number for column name

Usage

```
get_column_no_colnames(data, column_name)
```

Arguments

<code>data</code>	a data frame
<code>column_name</code>	column names of the data frame

Value

column number, if success -1, if failure

Examples

```
get_column_no_colnames(data.frame(age = rep(20, 4),  
sex = rep("male", 4)), "sex")
```

`get_frequency_table` *Function to return frequency table*

Description

Function to return frequency table

Usage

```
get_frequency_table(v)
```

Arguments

<code>v</code>	a vector
----------------	----------

Value

frequency table

Examples

```
get_frequency_table(c(1, 1, 1, 12, 2))
```

get_mode_for_vec	<i>Function to return mode</i>
------------------	--------------------------------

Description

Function to return mode

Usage

```
get_mode_for_vec(v)
```

Arguments

v a vector

Value

mode if success -1 for failure

Examples

```
get_mode_for_vec(c(1, 1, 2, 3))
```

map_5Lto3L	<i>Function to map EQ-5D-5L scores to EQ-5D-3L index values as per the specific country and group by gender and age</i>
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Description

Function to map EQ-5D-5L scores to EQ-5D-3L index values

Usage

```
map_5Lto3L(  
  eq5dresponse_data,  
  mobility,  
  self_care,  
  usual_activities,  
  pain_discomfort,  
  anxiety,  
  country = "UK",  
  method = "CW",  
  groupby = NULL,  
  agelimit = NULL  
)
```


Arguments

eq5dresponse_data	the data containing eq5d5L responses
mobility	column name for EQ-5D-5L mobility
self_care	column name for response for EQ-5D-5L self care
usual_activities	column name for response for EQ-5D-5L usual activities
pain_discomfort	column name for response for EQ-5D-5L pain/discomfort
anxiety	column name for response for EQ-5D-5L anxiety/depression
country	country of interest, by default is UK, if groupby has to specify the country should be specified
method	CW cross walk
groupby	male or female -grouping by gender, default NULL
agelimit	vector of ages to show upper and lower limits

Value

index value if success, negative values for failure

Examples

```
map_5Lto3L(data.frame(
  mo = c(1), sc = c(4), ua = c(4), pd = c(3),
  ad = c(3)
), "mo", "sc", "ua", "pd", "ad")
```

map_5Lto3L_Ind

Function to map EQ-5D-5L descriptive system to 3L index value

Description

Function to map EQ-5D-5L descriptive system to 3L index value (ref: Van Hout et al 2012 and code inspired from <https://github.com/brechtdv/eq5d-mapping>)

Usage

```
map_5Lto3L_Ind(
  country = "UK",
  method = "CW",
  dimen,
  dimen2 = NA,
  dimen3 = NA,
  dimen4 = NA,
  dimen5 = NA
)
```

Arguments

country	default is "UK"
method	CW cross walk
dimen	response for EQ-5D-5L mobility or the 5 digit response, or the vector of responses, e.g. 11111, c(1,1,1,1,1) or 1
dimen2	response for EQ-5D-5L self care, or NA if the responses are given as dimen
dimen3	response for EQ-5D-5L usual activities, or NA if the responses are given as dimen
dimen4	response for EQ-5D-5L pain/discomfort, or NA if the responses are given as dimen
dimen5	response for EQ-5D-5L anxiety/depression, or NA if the responses are given as dimen

Value

index value of EQ-5D-3L, -1 if any error

Examples

```
map_5Lto3L_Ind("UK", "CW", 11125)
map_5Lto3L_Ind("UK", "CW", c(1, 1, 1, 2, 5))
map_5Lto3L_Ind("UK", "CW", 1, 1, 1, 2, 5)
```

map_5Lto3L_Ind_NICE2022

Function to map EQ-5D-5L descriptive system to 3L index value using Hernandez et al (2017) method and DSU's functional approach for NICE guidance 2022 countries are UK(England), Japan, Korea, Netherlands, China, Spain and Germany

Description

Function to map EQ-5D-5L descriptive system to 3L index value (ref:Hernandez, M. and Pudney, S. (2017) and code inspired from <https://www.sheffield.ac.uk/nice-dsu/methods-development/mapping-eq-5d-5l-3l>)

Usage

```
map_5Lto3L_Ind_NICE2022(
  country,
  gender,
  dimen = NA,
  age = NA,
  agegroup = NA,
  dimen1 = NA,
```

```

    dimen2 = NA,
    dimen3 = NA,
    dimen4 = NA,
    dimen5 = NA
  )

```

Arguments

country	specific country from the above country list
gender	gender
dimen	response for EQ-5D-5L mobility or the 5 digit response, or the vector of responses, e.g. 11111, c(1,1,1,1,1) or 1
age	age if given as exact age
agegroup	if age is not known age group should be given they are 16-35, 35-45, 45-55, 55-65, 65-100. 1-5
dimen1	response for EQ-5D-5L mobility, or NA if the responses are given as dimen
dimen2	response for EQ-5D-5L self care, or NA if the responses are given as dimen
dimen3	response for EQ-5D-5L usual activities, or NA if the responses are given as dimen
dimen4	response for EQ-5D-5L pain/discomfort, or NA if the responses are given as dimen
dimen5	response for EQ-5D-5L anxiety/depression, or NA if the responses are given as dimen

Value

index value of EQ-5D-3L, -1 if any error

Examples

```

map_5Lto3L_Ind_NICE2022("England", "female", 11121, 30)
map_5Lto3L_Ind_NICE2022("England", "female", NA, 30, NA, 1,2,3,4,5)

```

map_5Lto3L_NICE2022 *Function to map EQ-5D-5L scores to EQ-5D-3L index values as per the specific country and by gender and age or agegroup for a dataset*

Description

Function to map EQ-5D-5L scores to EQ-5D-3L index values

Usage

```
map_5Lto3L_NICE2022(
  eq5dresponse_data,
  mobility,
  self_care,
  usual_activities,
  pain_discomfort,
  anxiety,
  country = "UK",
  gendercol,
  agecol,
  agegroupcol = NA,
  groupby = NA,
  agelimit = NA
)
```

Arguments

eq5dresponse_data	the data containing eq5d5L responses
mobility	column name for EQ-5D-5L mobility
self_care	column name for response for EQ-5D-5L self care
usual_activities	column name for response for EQ-5D-5L usual activities
pain_discomfort	column name for response for EQ-5D-5L pain/discomfort
anxiety	column name for response for EQ-5D-5L anxiety/depression
country	country of interest, by default is UK, if groupby has to specify the country should be specified
gendercol	name of gender column
agecol	name of age column
agegroupcol	name of age group column
groupby	male or female -grouping by gender, default NULL
agelimit	vector of ages to show upper and lower limits

Value

index value if success, negative values for failure

Examples

```
data <- data.frame(
  age = c(40, 20), sex = c("M", "F"),
  mo = c(1, 2), sc = c(1, 2), ua = c(3, 4), pd = c(3, 4), ad = c(3, 4))
map_5Lto3L_NICE2022(data, "mo", "sc", "ua", "pd", "ad", "UK", "sex", "age")
```

Probability_matrix_crosswalk.df
Probability matrix for the cross walk

Description

Probability matrix for the cross walk

Usage

Probability_matrix_crosswalk.df

Format

A dataframe with 3124 rows and 243 columns

Source

https://euroqol.org/wp-content/uploads/2018/02/EQ-5D-5L_Crosswalk_model_and__methodology2.pdf
Van Hout et al (2012) <doi: 10.1016/j.jval.2012.02.008>.

replace_space_underscore
Function to add an underscore for texts with spaces in between

Description

Function to add an underscore for texts with spaces in between

Usage

replace_space_underscore(this_string)

Arguments

this_string a string

Value

string where the spaces replaced by "_"

Examples

replace_space_underscore("Sri Lanka")

subset_gender_age_to_group

Function to check the gender column and age column subset based on the values in it have used) in a data frame

Description

Function to check the gender column and age column subset based on the values in it have used) in a data frame

Usage

```
subset_gender_age_to_group(data, gender, agelimit)
```

Arguments

data	a data frame
gender	groupby gender either male or female expected
agelimit	list of ages e.g. c(10,20)

Value

the column number

Examples

```
subset_gender_age_to_group(data.frame(age = rep(20, 4), gender =
rep("male", 4)), "male", c(10, 70))
```

test_data_num_norange *Function to check format of a numeric column when the values are not bounded*

Description

Function to check format of a numeric column when the values are not bounded

Usage

```
test_data_num_norange(vec, nrcode = NA)
```

Arguments

vec	a column vector
nrcode	non response code corresponding to the column

Value

0, if success -1, if failure

Examples

```
test_data_num_norange(c(1, 2, 3, 4, -99), -99)
```

test_file_exist_read *Function to throw error on invalid directory or file or if the file is not readable*

Description

Function to throw error on invalid directory or file or if the file is not readable

Usage

```
test_file_exist_read(filename)
```

Arguments

filename name of a file or directory

Value

0 if success, non zero negative values if failure

Examples

```
test_file_exist_read(system.file("extdata", "blank.txt",
package = "valueEQ5D"))
```

value_3L *Function to value EQ-5D-3L columns to index values for any country and group by gender and age*

Description

Main function to value EQ-5D-5L descriptive system to 5L index values.

Usage

```
value_3L(
  eq5dresponse_data,
  mo,
  sc,
  ua,
  pd,
  ad,
  country,
  method,
  groupby,
  agelimit
)
```

Arguments

eq5dresponse_data	the data containing eq5d responses
mo	column name for EQ-5D-3L mobility
sc	column name for response for EQ-5D-3L self care
ua	column name for response for EQ-5D-3L usual activities
pd	column name for response for EQ-5D-3L pain/discomfort
ad	column name for response for EQ-5D-3L anxiety/depression
country	country of interest, by default is UK, if groupby has to specify the country should be specified
method	Either "TTO" or "VAS"
groupby	male or female -grouping by gender, default NULL
agelimit	vector of ages to show upper and lower limits

Value

the descriptive statistics of index values, frequency table and the modified data where the last column will be the index values `data<-data.frame(age=c(10,20),sex=c("M","F"),mo=c(1,2),sc=c(1,2),ua=c(3,4),pd=c(3,1),ad=c(3,1))` `value_3L(data, "mo", "sc","ua", "pd", "ad","UK","TTO",NULL,c(10,70))`

value_3L_Ind

Function to value EQ-5D-3L scores for various countries

Description

Function to value EQ-5D-3L scores for various countries

Usage

```
value_3L_Ind(
  country,
  method,
  dimen,
  dimen2 = NA,
  dimen3 = NA,
  dimen4 = NA,
  dimen5 = NA
)
```

Arguments

country	a country name from the list Belgium,Brazil,Canada,Chile, Denmark,Europe,Finland,France,Germany,Italy,NewZealand,Poland,Portugal,Slovenia,Spain,Taiwan,Thailand,UK,USA,and Zimbabwe
method	method name either TTO or VAS
dimen	a must input,response for EQ-5D-5L mobility or the 5 digit response, or the vector of responses, e.g. 11111, c(1,1,1,1,1) or 1
dimen2	response for EQ-5D-3L self care, or NA if the responses are given as dimen
dimen3	response for EQ-5D-3L usual activities,or NA if the responses are given as dimen
dimen4	response for EQ-5D-3L pain/discomfort, or NA if the responses are given as dimen
dimen5	response for EQ-5D-3L anxiety/depression, or NA if the responses are given as dimen

Value

index value based if success, negative values for failure

Examples

```
value_3L_Ind("UK", "TTO", 23131)
value_3L_Ind("Spain", "TTO", 2, 3, 1, 3, 1)
value_3L_Ind("Denmark", "VAS", c(1, 2, 3, 1, 3))
```

value_5L	<i>Function to value EQ-5D-5L scores for any country and group by gender and age</i>
----------	--

Description

Function to value EQ-5D-5L descriptive system to index value.

Usage

```
value_5L(  
  eq5dresponse_data,  
  mo,  
  sc,  
  ua,  
  pd,  
  ad,  
  country = "England",  
  groupby = NULL,  
  agelimit = NULL  
)
```

Arguments

eq5dresponse_data	the data containing eq5d responses
mo	column name for EQ-5D-5L mobility
sc	column name for response for EQ-5D-5L self care
ua	column name for response for EQ-5D-5L usual activities
pd	column name for response for EQ-5D-5L pain/discomfort
ad	column name for response for EQ-5D-5L anxiety/depression
country	country of interest, by default is England
groupby	male or female -grouping by gender, default NULL
agelimit	vector of ages to show upper and lower limits, default NULL

Value

index value if success, negative values for failure

Examples

```
data <- data.frame(  
  age = c(10, 20), sex = c("M", "F"),  
  mo = c(1, 2), sc = c(1, 2), ua = c(3, 4), pd = c(3, 4), ad = c(3, 4)  
)  
value_5L(data, "mo", "sc", "ua", "pd", "ad", "England", NULL, c(10, 70))
```

value_5L_Ind	<i>Function to value EQ-5D-5L scores for various countries</i>
--------------	--

Description

Function to value EQ-5D-5L scores for various countries

Usage

```
value_5L_Ind(  
  country,  
  dimen,  
  dimen2 = NA,  
  dimen3 = NA,  
  dimen4 = NA,  
  dimen5 = NA  
)
```

Arguments

country	a country name from the list Canada,China,England, Germany,HongKong,Indonesia,Ireland,Japan,Korea, Poland,Spain,Taiwan,Thailand,and Uruguay
dimen	a must input,response for EQ-5D-5L mobility or the 5 digit response, or the vector of responses, e.g. 11111, c(1,1,1,1,1) or 1
dimen2	response for EQ-5D-5L self care, or NA if the responses are given as dimen
dimen3	response for EQ-5D-5L usual activities,or NA if the responses are given as dimen
dimen4	response for EQ-5D-5L pain/discomfort, or NA if the responses are given as dimen
dimen5	response for EQ-5D-5L anxiety/depression, or NA if the responses are given as dimen

Value

index values if success, negative values if failure

Examples

```
value_5L_Ind("England", 23434)  
value_5L_Ind("China", 2, 3, 4, 3, 4)  
value_5L_Ind("Poland", c(1, 2, 3, 4, 3))
```

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