Conceptualisation of Supra-National Value Sets for the EQ-5D

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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 779292
Background

• Various value sets produce different estimates of EQ-5D index scores and, ultimately, may impact the interpretation of the study results.

• Applying different national EQ-5D value sets to the same study population may result in substantially different incremental QALY estimates.

• For countries that do not have national value sets, it is recommended to use already developed value sets from countries that are similar and, in theory, are likely to have matching health preferences.
  ◦ E.g. based on geographical proximity.
  ◦ The EuroQol guideline: if a standard EQ-5D-3L/5L value set is not available for the country, an option may be to select an EQ-5D-3L/5L value set for a country/region that most closely approximates this country (EuroQol Research Foundation 2019).

Based on what criteria?
The aim of PECUNIA

• Developing harmonised methods, tools and information for cost and outcome assessment for economic evaluations in Europe.

• The aim of this WP5 Outcomes sub-study: to develop a conceptual framework for the development of regional/supra-national value sets and derive regions/clusters of countries that are likely to share similar characteristics relevant for preference-based health state valuations.
Value sets across Europe
EQ-5D-3L

2019

2020
Value sets across Europe

EQ-5D-5L

2019

EQ-5D-5L

- EQ-VT v2.0
- EQ-VT v1.0
- Ongoing or completed data collection

2020

EQ-5D-5L

- EQ-VT v2.0
- EQ-VT v1.0
- Experience-based value set
- Ongoing or completed data collection
Use of value sets in European countries without a national one (EQ-5D-3L & -5L)

Source: Own research (November 2019); both 3L and 5L versions of the EQ-5D are included
*Renz et al. 2016
There is a set of variables related to personal characteristics that influence how people value EQ-5D health states in valuation studies.

Countries grouped into a cluster on the basis of cultural/country characteristics are likely to have matching health preferences with respect to the valuation of EQ-5D health states.

To identify variables relevant in EQ-5D health state valuations in order to understand which country characteristics might be relevant for creating groups of countries for the regional EQ-5D value sets.

To use these variables to group European countries; countries most frequently grouped together formed the basis of clusters where national value set can be used for supra-national value set estimation.
Our work

There is a set of variables related to personal characteristics that influence how people value EQ-5D health states in valuation studies. To identify variables relevant in EQ-5D health state valuations in order to identify which country characteristics might be relevant for creating groups of countries for the regional EQ-5D value sets.

Countries grouped into a cluster on the basis of cultural considerations and country characteristics are likely to have matching health preferences with respect to the valuation of EQ-5D health states. Use these variables to group European countries; countries most frequently grouped together formed the basis of clusters where national value set can be used for supra-national value sets.
Identification of the factors influencing differences in EQ-5D health state valuations across populations

- Literature search between Oct and Dec 2019
- Not restricted to any country, language or time period
- Search: Embase, Medline, and Social Sciences Citation Index + Reference lists of identified records + the EuroQol Group’s website as a grey literature search
- Flexible inclusion criteria due to the exploratory character of the search:
  - Studies empirically investigating differences in how people valued EQ-5D hypothetical states based on their country of origin or other characteristics, e.g. sex, ethnicity, socio-economic status, etc., in any country
  - Studies reflecting of these aspects (e.g. as part of their discussion section)
Number of studies mentioning possible variables influencing cross-country differences in EQ-5D valuations (n=69)

- Cultural differences: 31
- Language differences/translation issues: 16
- Methodology of value set development: 16
- Healthcare system differences (HCS typology, HCS financing): 14
- Economic differences: 10
- Societal and socio-demographic differences: 9
- Religion: 9
- Racial/ethnic differences: 5
- Geographical proximity: 3
- Environmental differences: 2
Are these variables relevant for creating groups of countries for the regional EQ-5D value sets?

Criteria adapted from Carinci et al. (2015)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Validity</th>
<th>Reliability</th>
<th>International feasibility</th>
<th>International comparability</th>
<th>Inclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural beliefs</td>
<td>Sufficient scientific evidence exists to support a link between the variable and variations in health state valuations</td>
<td>Variables represent a stable phenomenon, and the repeated measurements over time produce similar results</td>
<td>A ‘value’ of variable can be derived for international comparisons without substantial additional resources</td>
<td>The definition of the variable is the same in each country</td>
<td>included</td>
</tr>
<tr>
<td>Language/ translation issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>included</td>
</tr>
<tr>
<td>Methodology of value set development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n/a</td>
</tr>
<tr>
<td>Healthcare system differences (typology, financing)</td>
<td>0.5</td>
<td>1</td>
<td>0.5</td>
<td>0.5</td>
<td>included</td>
</tr>
<tr>
<td>Religion</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>included</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>0.5</td>
<td>1</td>
<td>0.5</td>
<td>0.5</td>
<td>excluded</td>
</tr>
<tr>
<td>Socio-demographic structures</td>
<td>0.5</td>
<td>0.5</td>
<td>1</td>
<td>0.5</td>
<td>included</td>
</tr>
<tr>
<td>Economy/country development</td>
<td></td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>excluded</td>
</tr>
<tr>
<td>Geographic proximity</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>excluded</td>
</tr>
<tr>
<td>Environmental aspects</td>
<td></td>
<td>0</td>
<td>0.5</td>
<td>0.5</td>
<td>excluded</td>
</tr>
</tbody>
</table>

Three-point scoring was applied depending if the variable 1) met the criterion (1 point), 2) met the criterion in part (0.5 points), 3) did not meet the criterion (0 points). The variables that were assigned 0 to any of the criteria were automatically excluded from further investigation.
Our work

There is a set of variables related to personal characteristics that influence how people value EQ-5D health states in valuation studies.

Countries grouped into a cluster on the basis of cultural considerations and country characteristics are likely to have matching health preferences with respect to the valuation of EQ-5D health states.

Identify variables relevant in EQ-5D health state valuations in order to identify which country characteristics might be relevant for creating groups of countries for the regional EQ-5D value sets.

Use these variables to group European countries; countries most frequently grouped together formed the basis of clusters where national value set can be used for supra-national value sets.
Country grouping categories (n=5)

- **Culture and Religion**
- **Language**
- **Healthcare system typology**
- **Healthcare system financing**
- **Socio-demographics**

- Countries were grouped based on typologies available in literature:
  - Huntingdon 1993; Inglehart & Baker 2000
  - Van der Auwera & Baoill 1998
  - Ferreira et al. 2018; EURO-HEALTHY project
  - Wendt et al. 2009; Böhm et al. 2013
  - Figueras et al. 1994; Genova 2010; Palevičienė & Dumčiuvienė 2015
Example of a proposed grouping category for EU and EFTA countries

<table>
<thead>
<tr>
<th>Grouping category</th>
<th>Sub-categories</th>
<th>Countries included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>Germanic West</td>
<td>The Netherlands, Belgium, Germany, Austria, Switzerland, UK, Ireland, Luxembourg</td>
</tr>
<tr>
<td></td>
<td>Germanic North</td>
<td>Norway, Denmark, Iceland, Sweden</td>
</tr>
<tr>
<td></td>
<td>Romance Western</td>
<td>France, Italy, Portugal, Spain</td>
</tr>
<tr>
<td></td>
<td>Romance Eastern</td>
<td>Romania</td>
</tr>
<tr>
<td></td>
<td>Baltic</td>
<td>Latvia, Lithuanian</td>
</tr>
<tr>
<td></td>
<td>Slavic West</td>
<td>Poland, Czech Republic, Slovakia</td>
</tr>
<tr>
<td></td>
<td>Slavic South</td>
<td>Bulgaria, Croatia, Slovenia</td>
</tr>
<tr>
<td></td>
<td>Greek</td>
<td>Greece, Cyprus</td>
</tr>
<tr>
<td></td>
<td>Finnic</td>
<td>Estonia, Finland</td>
</tr>
<tr>
<td></td>
<td>Ugric</td>
<td>Hungary</td>
</tr>
<tr>
<td></td>
<td>Maltese</td>
<td>Malta</td>
</tr>
</tbody>
</table>
Clusters for supra-national value sets

We analysed how many times pairs of countries have been assigned to the same sub-category within the respective five grouping categories. The Figure is a graphical representation of the results.
Clusters for supra-national value sets

<table>
<thead>
<tr>
<th>Name of the cluster</th>
<th>Countries</th>
<th>Countries with 3L TTO value set</th>
<th>Countries with 5L value set</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>English-speaking</td>
<td>Ireland, UK¹</td>
<td>UK</td>
<td>Ireland</td>
<td>Use of UK or Irish value set</td>
</tr>
<tr>
<td>Nordic</td>
<td>Sweden, Norway, Finland, Denmark, Iceland</td>
<td>Denmark</td>
<td>-</td>
<td>Use of Danish value set for 3L and Irish value set for 5L</td>
</tr>
<tr>
<td>Central-Western</td>
<td>Germany, France, Switzerland, The Netherlands, Austria, Belgium, Luxembourg</td>
<td>France, Germany, The Netherlands</td>
<td>France, Germany, The Netherlands</td>
<td>A supra-national value set calculated</td>
</tr>
<tr>
<td>South-Western</td>
<td>Portugal, Malta, Spain, Italy, Cyprus, Greece</td>
<td>Italy, Portugal, Spain</td>
<td>Portugal, Spain</td>
<td>A supra-national value set calculated</td>
</tr>
<tr>
<td>Eastern European</td>
<td>Poland, Czech Republic, Slovenia, Hungary, Bulgaria, Romania, Slovakia, Croatia, Estonia, Latvia, Lithuania</td>
<td>Poland, Hungary²</td>
<td>Poland, Hungary²</td>
<td>A supra-national value set to be calculated</td>
</tr>
</tbody>
</table>

Note: Experience-based value sets (available for Sweden) are excluded
¹ The 5L UK value set is not considered in this study as per NICE recommendations
² An update of supra-national value sets is planned for 2021
EQ-5D-5L index scores for selected health states by the four different value sets

- Mobility
- Self-care
- Usual activities
- Pain/Discomfort
- Anxiety/Depression

Health state

The Netherlands  Germany  France  Central-Western supra-national value set
EQ-5D-5L index scores for selected health states by the four different value sets

The Netherlands
Germany
France
Central-Western value set
Thank you for your attention!

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