The Utility of EQ-5D in measuring outcomes that matter to older people

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Defining Health Outcomes

- "The effect […that a healthcare] process has […] on the people targeted by it. This includes, for example, changes in their self-perceived health status or changes in the distribution of health determinants, or factors which are known to affect their health, well-being and quality of life." WHO

- "A change in the health of an individual, group of people or population which is attributable to an intervention or series of interventions" NSW Health Dept. (1992)

- "A change (or lack of change) in the health status caused by a therapy or factor when compared with a previously documented health status using disease-specific measures, general quality of life measures or utility measures" HIQA (2018)

- **Health** is a key determinant of wellbeing and quality of life for **older people**." (Research Strategy 2015-2019, HSE)

Health Outcomes

- 'Achieving good **health outcomes**, whether for individuals or populations, is the fundamental purpose of healthcare' Murphy (2012)

- Department of Health Ireland - Statement of Strategy (2016-2019) 'sets out an ambitions range of actions to improve **health outcomes** and the health services over the life of this Strategy.'

- Irish Government spent over €15 billion on health in 2017 (Dept. of Public Expenditure and reform)

Long-term recognition of importance of health outcomes

Clinically reported outcomes

- James Lind 1747 recorded the outcomes of a "medical" treatment
    - "A treatise of the Scurvy"

- Florence Nightingale 1863
    - "Notes on Hospitals"
    - "… if the function of a hospital were to kill the sick, statistical comparison of this nature would be admissible"

- Evidence of good practice
    - The real value of accurate **clinical outcome** data became apparent with the exposure of the poor results in Paediatric Cardiac Surgery at the Bristol Royal Infirmary.
    - Following published outcome measures by Robinson in 1988 which led to an Inquiry and report "Learning from Bristol" mortality rates decreased from 30% to 4% with 2 years.
    - "After Bristol, the Society Cardiothoracic Surgery in Britain and Ireland (SCTC) took the lead in the UK on measuring, recording, and publishing **clinical outcomes**." (Murphy, 2012)

Patient reported outcomes

Health Related Quality of Life (HRQoL)

- Generic
- Disease specific

- HRQoL is a "multi-dimensional concept that includes domains related to physical, mental, emotional and social functioning. It goes beyond direct measures of population health, life expectancy and causes of death and **focuses on the impact health status has on quality of life**" Office of Disease Prevention and Health Promotion (ODPHP, 2018)

Economic Evaluations In Ireland

- HIQA uses them to:
  - "evaluate the cost and health benefits of a technology in accordance with best practice. This in turn promotes the development of high-quality HTAs that are relevant to the Irish healthcare system" (HIQA, 2014)

  - HTAs require information on health and **health outcomes** to allow for meaningful comparison of alternative uses of resources in terms of relative value for money

- NCPE uses them to:
  - Issue recommendations in respect of "Value for Money" of new medicines

- To assess alternative uses of resources:
  - It is important that measurements incorporate preferences (i.e. the value) of **health outcomes**

- One of the well-known instruments that have these properties of assigning value on observed **health outcomes** is the **EQ-5D**

EQ-5D

- EQ-5D has been developed since 1986 by the EuroQol Research Foundation
  - It is applicable to a wide range of health conditions and treatments; it provides a simple descriptive profile and a single index value for health status that can be used in the clinical and economic evaluation of healthcare

- A central component of the EQ-5D system is the 'value set'
  - Numerical summaries of how good or bad a health state is from the perspective of the general population on a standard scale where 1 represents full health and 0 represents a state as bad as being dead

- The EQ-5D-5L
  - Is a modern, specific version of the EQ-5D (Herdman et al., 2011)
  - There are now a complete Irish value set (Hobbins et al, 2018)
  - Standardised and validated for international comparisons (Oppe et al., 2014)
    - The standardised protocol facilitates international comparisons of health preferences
    - Face-to-face computer aided personal interviews with trained interviewers
    - It allows for real time analysis of survey quality and permits rigorous quality control

EQ-5D-5L DESCRIPTIVE SYSTEM (2 Page)

VAS

MOBILITY

I have no problems in walking about ☐

I have slight problems in walking about ☐

I have moderate problems in walking about ☐

I have severe problems in walking about ☐

I am unable to walk about ☐

SELF-CARE

I have no problems washing or dressing myself ☐

I have slight problems washing or dressing myself ☐

I have moderate problems washing or dressing myself ☐

I have severe problems washing or dressing myself ☐

I am unable to wash or dress myself ☐

USUAL ACTIVITIES *(e.g. work, study, housework, family or leisure activities)*

I have no problems doing my usual activities ☐

I have slight problems doing my usual activities ☐

I have moderate problems doing my usual activities ☐

I have severe problems doing my usual activities ☐

I am unable to do my usual activities ☐

PAIN / DISCOMFORT

I have no pain or discomfort ☐

I have slight pain or discomfort ☐

I have moderate pain or discomfort ☐

I have severe pain or discomfort ☐

I have extreme pain or discomfort ☐

ANXIETY / DEPRESSION

I am not anxious or depressed ☐

I am slightly anxious or depressed ☐

I am moderately anxious or depressed ☐

I am severely anxious or depressed ☐

I am extremely anxious or depressed ☐

Your health today

Please click the ONE box that best describes your health TODAY

MOBILITY

I have no problems in walking about ☑

I have slight problems in walking about ☐

I have moderate problems in walking about ☐

I have severe problems in walking about ☐

I am unable to walk about ☐

VAS

The best health you can imagine

100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
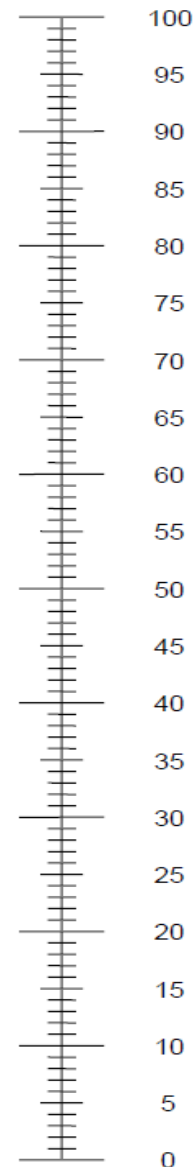
The worst health you can imagine

Measurement properties of the EQ-5D across four major geriatric conditions: Findings from TOPICS-MDS (Lutomsk et al., 2017) The Netherlands

- N=25,637 community dwelling people aged 65 and older.

- 'This study supported the construct validity of the EQ-5D across for four major geriatric conditions'

  - Hearing issues, Joint damage, Urinary incontinence, Dizziness with falls.

'*EQ-5D as a predictor of mortality and hospitalization in <u>elderly people</u>*.' (Cavrini et al. , 2012) Italy

- The EQ-5D ' has been widely validated by previous epidemiological studies and due to its simplicity, is particularly suitable for use with elderly people'

- Found that 'HRQOL Health related Quality of Life measured by the EQ-5D is a useful predicitor of mortality and first hospitalization in a generic elderly population, in part because of its brevity and its low respondent (and user) burden.'

Quality of life in community-dwelling Dutch elderly measured by EQ-5D-3L (Mangen et al., 2017)
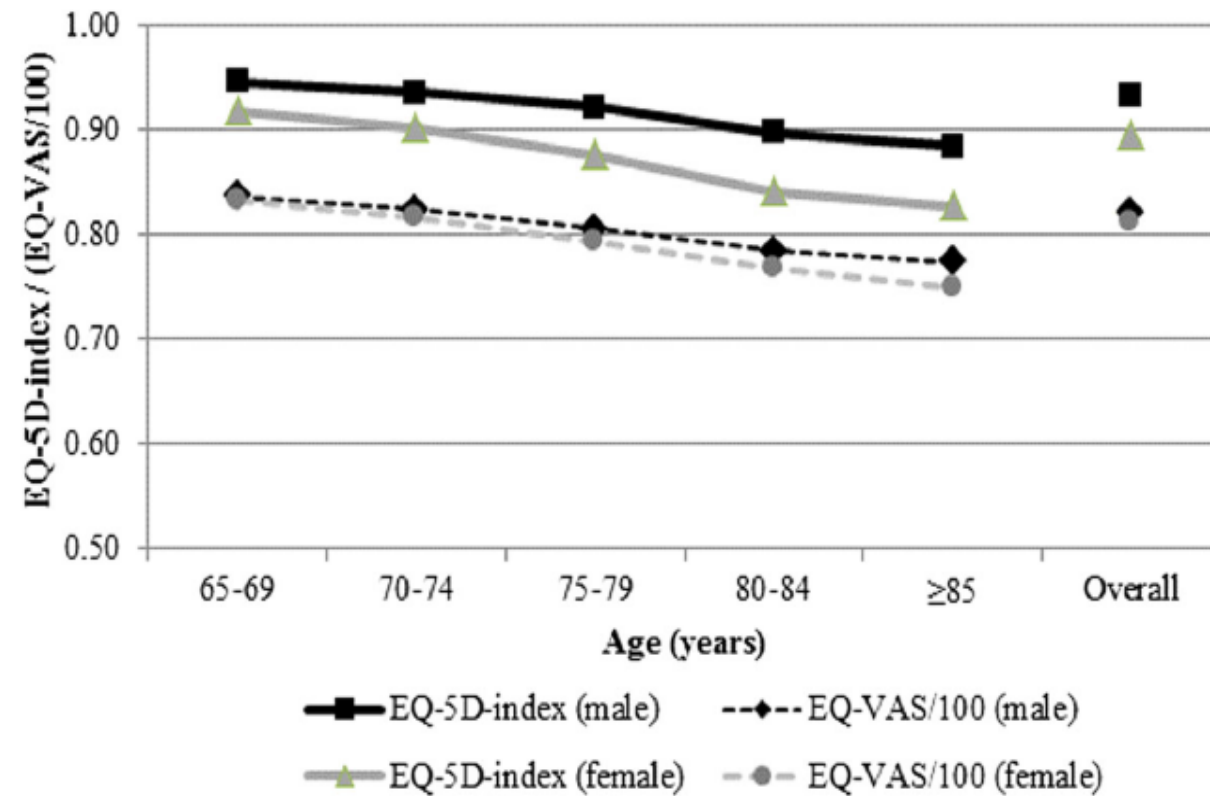

Fig. 2 Mean population EQ-VAS and mean EQ-5D-3L-index by age-group and sex. Note: EQ-VAS and EQ-5D-3L indices were significantly different between age-group and sex ($p > 0.01$)

Physical Activity and Health-Related Quality of Life Among Community Dwelling <u>Elderly</u>. (Halaweh et al. 2015) Palestine

- The EQ-5D-5L was 'found to be a practical and simple tool for elderly population even where the level of education was low.

- The group with high physical acitivity (PA) whowed better values in all dimensions in HRQoL.

- Also the prevelance of comorbid conditions was higher in the low PA group.

- Therefore, adopting a physically active lifestyle may contribute to better health and HRQoL among the elderly.

Quality of life in older adults following a hip fracture: an empirical comparison of the ICECAP-O and the EQ-5D-3 L instruments (Milte et al., 2018 Australia)

- The majority of our sample of patients with a hip fracture indicated they had problems with the EQ-5D-3L dimensions of mobility, self-care, usual activities, and pain or discomfort,

- Just under half of our sample indicated they were moderately or extremely anxious or depressed

Irish Sample characteristics

Socio demographic	Sample	Irish Population
	N= 1,160	
	(%)	%
Age		
18-25	7.78	11.95
25-34	14.31	21.95
35-44	19.48	20.21
45-54	20.09	16.85
55-64	16.38	13.47
65-74	14.05	8.86
75+	7.84	6.70
Gender		
Male	37.16	48.99

38% > 54 Years

Years of Age	n	% of 1160 sample
80	10	0.86
81	7	0.6
82	6	0.52
83	9	0.78
84	4	0.34
85	1	0.09
86	3	0.26
87	4	0.34
88	2	0.17
90	1	0.09
91	1	0.09

ORIGINAL RESEARCH ARTICLE

CrossMark

Utility Values for Health States in Ireland: A Value Set for the EQ-5D-5L

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Independent variables of the model	Coefficient	(SE)	z	P>|z|	[95% Conf. Interval)		Value for Health State 23243
Mobility (MO)							
Slight problems	0.063	(0.009)	6.99	0.000	0.045	0.081	0.063
Moderate problems	0.097	(0.013)	7.39	0.000	0.071	0.122	
Severe problems	0.215	(0.013)	17.17	0.000	0.191	0.240	
Unable	0.344	(0.013)	26.79	0.000	0.319	0.369	
Self-care (SC)							
Slight problems	0.055	(0.009)	6.46	0.000	0.039	0.072	
Moderate problems	0.088	(0.013)	6.96	0.000	0.063	0.113	0.088
Severe problems	0.229	(0.013)	17.55	0.000	0.204	0.255	
Unable	0.287	(0.012)	24.26	0.000	0.264	0.310	
Usual activities (UA)							
Slight problems	0.049	(0.009)	5.8	0.000	0.033	0.066	0.049
Moderate problems	0.072	(0.012)	5.95	0.000	0.048	0.096	
Severe problems	0.154	(0.012)	12.75	0.000	0.131	0.178	
Unable	0.187	(0.012)	15.33	0.000	0.163	0.211	
Pain/discomfort (PD)							
Slight	0.068	(0.008)	8.38	0.000	0.052	0.084	
Moderate	0.093	(0.013)	7.32	0.000	0.068	0.118	
Severe	0.373	(0.013)	28.5	0.000	0.347	0.399	0.373
Extreme	0.510	(0.014)	36.81	0.000	0.483	0.537	
Anxiety /depression (AD)							
Slight	0.080	(0.008)	9.55	0.000	0.064	0.097	
Moderate	0.202	(0.012)	16.38	0.000	0.178	0.226	0.202
Severe	0.535	(0.013)	42.52	0.000	0.510	0.560	
Extreme	0.646	(0.013)	48.14	0.000	0.619	0.672	

The value for health state **23232** i.e.

- Slight problems with mobility
- Moderate problems with self-care
- Slight problems with usual activities
- Severe problems with pain/discomfort
- Moderate problems with anxiety/depression

$= 1 - (0.063 + 0.088 + 0.049 + 0.093 + 0.080)$
$= 0.627$

Key points

- Health Outcomes are important for informing decision making in health care
    - Which treatment is appropriate for which patient or population groups e.g. older people.
    - What are the outcomes that matter to that group?

- Both clinical and patient-reported health outcomes measures are relevant for decision making

- Need to define:
    - What are the appropriate outcome measures?
    - How often should outcome data be collected?
    - By which mean should they be collected? – self-reported questionnaires, electronically/app-based?
    - How should the be reported and disseminated?

- Appropriate measures may depend on
    - Which health care decisions are to be informed
    - Who are the decision makers and what are their responsibilities and perspectives

THANK YOU

Anna Hobbins,

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