

# How do patients with Type 2 Diabetes Mellitus value the importance of outcomes of self-management interventions? An overview of reviews

Ena Niño de Guzmán<sup>1,2</sup>, Javier Pérez-Bracchiglione<sup>3</sup>, Laura Martínez García<sup>1</sup>, Claudio Rocha Calderón<sup>1</sup>,

Adrián Vásquez-Mejía<sup>4</sup>, Pablo Alonso Coello<sup>1,5</sup>, for the COMPARE-EU consortium

1. Iberoamerican Cochrane Centre, Sant Pau Biomedical Research Institute (IIB-Sant Pau), Spain. 2. Cancer Prevention and Control Programme, Catalan Institute of Oncology, IDIBELL, Hospitalet de Llobregat, Barcelona, Spain 3. Interdisciplinary Centre for Health Studies (CIESAL), Universidad de Valparaíso, Chile 4. Facultad de Medicina Humana, Universidad Nacional Mayor de San Marcos, Lima, Perú 5. CIBER de Epidemiología y Salud Pública (CIBERESP), Madrid, Spain.

## Background

Developing recommendations regarding self-management interventions (SMI) for Type 2 Diabetes Mellitus (T2DM) requires incorporating patients' perspectives on the importance of outcomes.

Utility represents the preference patients exhibit for a particular outcome and ranges from zero (dead) to one (perfect health). Disutility is the decrement in utility due to a particular health state (outcome) and is expressed as a negative value. We aimed to review and summarise the available evidence exploring how patients with T2DM value the importance of outcomes.

## Methods

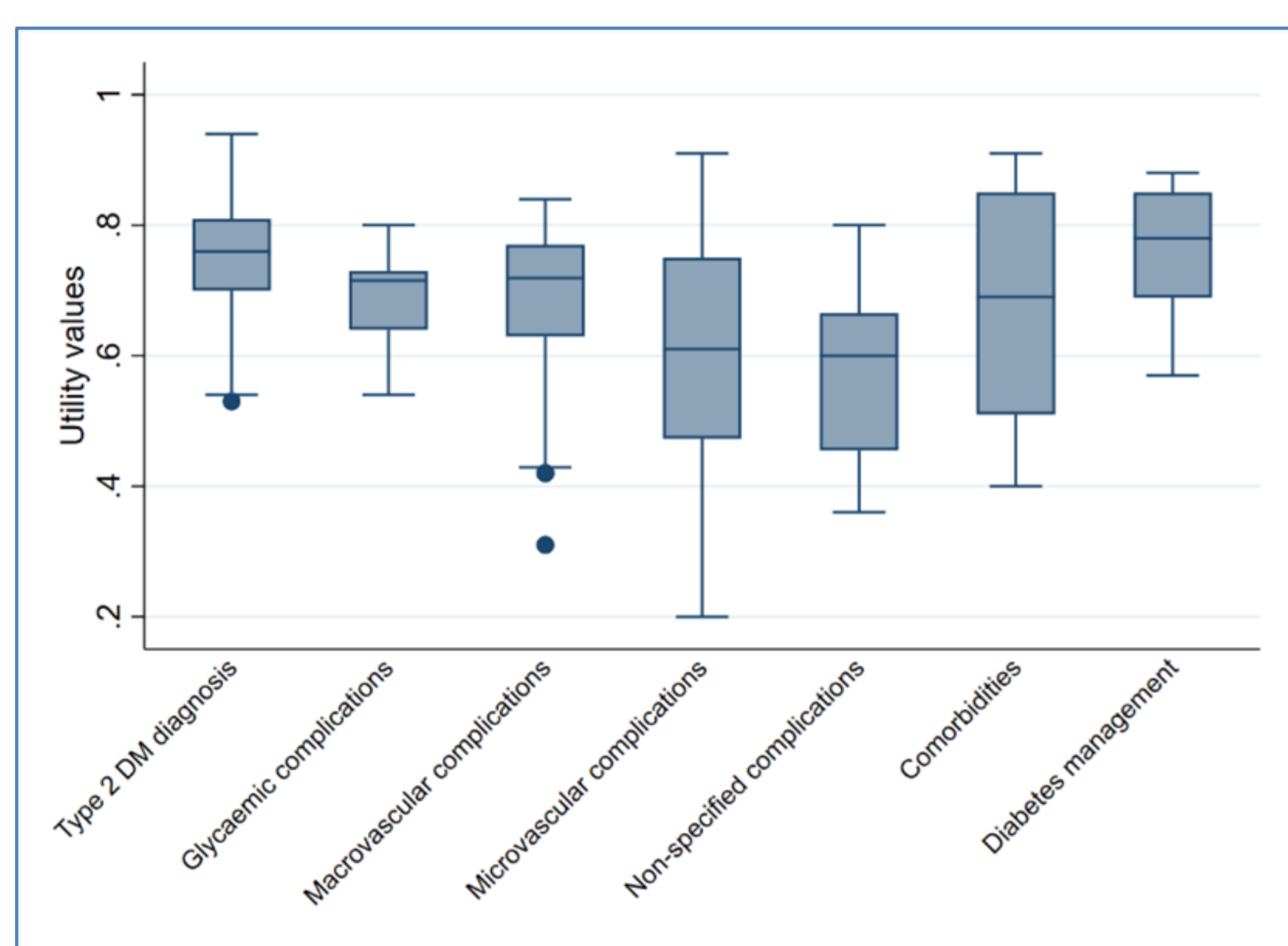
Overview of systematic reviews (SRs) of studies assessing how adult patients ( $\geq 18$  years old) with T2DM value outcomes importance measuring utility and/or disutility values obtained using direct or indirect methods. We searched in MEDLINE, CINAHL, and PsycINFO from inception until December 2020. We applied the Joanna Briggs Institute Critical Appraisal Checklist and measured overlapping with the corrected covered area method. We estimated general descriptive statistics and conducted a de-novo random-effects meta-analysis for outcomes with more than one observation.

## Results

We identified eleven SRs, representing 152 studies reporting utility and/or disutility values for 61 outcomes organized in seven categories. Six SRs (54%) included studies from worldwide, and also six assessed the quality of included studies. The most common method was the EuroQoL (EQ-5D) (8/11, 72%).

The categories with the lowest mean utility values were non-specified DM complications, microvascular complications, and comorbidities (Fig. A), and the five outcomes with the highest impact were *having two or more non-specified complications, diabetic neuropathic pain, amputation, end-stage renal disease and extreme obesity*. In comparison, the best-valued outcomes were having good or excellent glucose control.

A Utility values per categories



## Conclusions

We provide a set of utility and disutility values, informing how patients value the importance of outcomes of T2DM. This information can help guide decision-making regarding diabetes healthcare from organisational levels, such as implementing programs, to more internal levels, like the development of materials to facilitate shared decision-making in primary or specialised care.

Corresponding author Ena Niño de Guzmán Quispe

Unitat Cribratge Càncer Granvia de L'Hospitalet 199-203, 08908 L'Hospitalet de Llobregat  
[e.nino@iconcologia.net](mailto:e.nino@iconcologia.net)

Categories and outcomes*	Utility /disutility Mean	[95% CI]	N obs.	I <sup>2</sup>	Method(s)
1. Type 2 DM diagnosis	0.788	0.772 to 0.804	46	97.8%	EQ-5D, QW-SA, EQ-VAS, SF-6D
1.1 Baseline T2DM without complications	-0.038	NR	1	NA	QW-SA
1.2 General diabetes	0.748	0.736 to 0.759	109	99.0%	EQ-5D, SG, HUI-3, EQ-VAS, SF-6D, TTO
	-0.044	(SD) 0.04	3	NA	EQ-5D
2. Glycaemic complications					
2.1 Hypoglycaemia not specified	0.730	0.690 to 0.770	1	NA	EQ-5D
2.2 Hypoglycaemic symptom severity: None	0.800	0.760 to 0.840	1	NA	EQ-5D
2.3 Hypoglycaemic symptom severity: Mild	0.730	0.690 to 0.770	1	NA	EQ-5D
2.4 Hypoglycaemic symptom severity: Severe	0.700	0.660 to 0.740	1	NA	EQ-5D
2.5 Hypoglycaemic symptom severity: Very severe	0.540	0.500 to 0.580	1	NA	EQ-5D
2.6 Daytime hypoglycaemia	0.680	0.640 to 0.720	1	NA	EQ-5D
2.7 Night-time hypoglycaemia	0.600	0.560 to 0.640	1	NA	EQ-5D
2.8 Hyperglycaemia	0.730	0.690 to 0.770	1	NA	EQ-5D
2.9 Major hypoglycaemia event	-0.159	(SD) 0.11	3	NA	EQ-5D
2.10 Minor hypoglycaemia event	-0.045	(SD) 0.028	3	NA	EQ-5D
3. Macrovascular complications					
3.1 Heart failure	0.587	0.325 to 0.848	2	97.3%	EQ-5D, QWB-SA
	-0.084	-0.120 to -0.048	6	70.9%	EQ-5D, QWB-SA
	0.689	0.580 to 0.798	6	99.1%	EQ-5D, HUI-3
3.2 Ischemic heart disease	-0.070	-0.107 to -0.034	10	92.9%	EQ-5D, HUI-3
	0.764	0.725 to 0.802	6	84.4%	HUI-3, SF-6D, EQ-5D
3.3 Myocardial infarction	-0.057	-0.078 to -0.036	19	80.6%	EQ-5D
3.4 Peripheral vascular disease	-0.084	-0.124 to -0.045	4	41.7%	EQ-5D
3.5 Cardiovascular disorder NS	0.713	0.640 to 0.787	3	88.4%	EQ-5D
	-0.019	-0.070 to 0.032	1	NA	EQ-5D
	0.596	0.490 to 0.702	12	99.1%	EQ-5D, QWB-SA, TTO, HUI-3
		-0.182 to -			
4. Microvascular complications					
4.1 Diabetic retinopathy	0.698	0.588 to 0.808	6	98.7%	EQ-5D, TTO
	-0.023	-0.101 to 0.056	1	NA	EQ-VAS
4.2 Visual acuity mild affection	0.812	0.745 to 0.878	4	87.1%	EQ-5D, TTO
4.3 Visual acuity moderate affection	0.725	0.673 to 0.777	8	74.9%	EQ-5D, TTO
	-0.110	-0.188 to -0.032	2	87.0%	EQ-5D
4.4 Visual acuity severe affection	0.632	0.524 to 0.740	4	52.7%	EQ-5D, TTO
	-0.150	-0.228 to -0.072	1	NA	EQ-5D
4.5 Blindness	0.529	0.393 to 0.665	10	99.0%	EQ-5D, TTO
	-0.057	-0.135 to 0.021	1	NA	EQ-5D
4.6 Cataract	-0.016	-0.031 to -0.001	1	NA	EQ-5D
4.8 Ophthalmologic complications NS	0.722	0.565 to 0.879	2	94.3%	EQ-5D
4.9 Moderate macular oedema	-0.0400	NR	1	NA	EQ-5D
4.10 Diabetic kidney disease	0.684	0.624 to 0.743	10	71.8%	EQ-5D, QWB-SA, EQ-VAS, TTO,
	-0.029	-0.048 to -0.010	5	0%	15D, EQ-5D, QWB-SA
4.11 End-stage renal disease	<b>0.552</b>	0.487 to 0.617	21	99.8%	EQ-5D, SG, QWB-SA, TTO
	-0.177	-0.307 to -0.047	6	99.8%	EQ-5D, QWB-SA
4.12 Diabetic peripheral neuropathic pain	<b>0.468</b>	0.372 to 0.565	10	98.5%	EQ-5D
4.13 Diabetic peripheral neuropathy	0.668	0.561 to 0.774	8	98.9%	EQ-5D, EQ-VAS, SG
	-0.121	-0.191 to -0.051	4	63.5%	EQ-5D
4.14 Lower extremity disease: Foot ulcers	0.568	0.470 to 0.667	10	97.9%	EQ-5D, TTO, SG
	-0.127	-0.238 to -0.017	3	81.9%	EQ-5D
4.15 Primary healed foot ulcer	0.600	NR	1	NA	EQ-5D
4.16 Lower extremity disease: Neuropathy & PV	-0.085	-0.171 to 0.001	1	NA	EQ-5D
4.17 Amputation	0.537	0.453 to 0.621	9	94.5%	EQ-5D, TTO, SG
	<b>-0.205</b>	-0.344 to -0.066	3	77%	EQ-5D
4.18 Microvascular NS	0.723	(SD) 0.035	3	NA	EQ-5D
5. NS complication					
5.1 One NS complication	0.719	0.562 to 0.875	2	96.6%	EQ-5D
5.2 Two or more NS complications	<b>0.430</b>	0.338 to 0.522	3	55.2%	EQ-5D
5.3 Complications in general number NS	0.630	0.570 to 0.691	3	76.2%	EQ-5D

\*2 categories not reported here (Comorbidities and Diabetes Management)

Authors declare no conflicts of interest.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 754936