Health Concentration Indices based on EQ-5D-5L to Measure Inequalities in General Population Surveys in England and Spain: Results from the POPS II Methodology Pilot Project

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Objectives

❖ The EuroQol Group funded project 'Population Norms and Inequality Indicators based on EQ-5D-5L in General Population Surveys in England and Spain' (POPS II Methodology Pilot) aimed to establish the methodology to measure norms and inequalities from existing representative EQ-5D-5L general population surveys.

❖ The aim of the current analyses was to explore the use of health concentration indices in reporting health inequalities using data from two countries.

Methods

❖ Analyses of this pilot project captured EQ-5D-5L data England and Spain.

❖ Key sociodemographic/-economic (SES) variables in both surveys included age, gender, education, social class, income and family status.
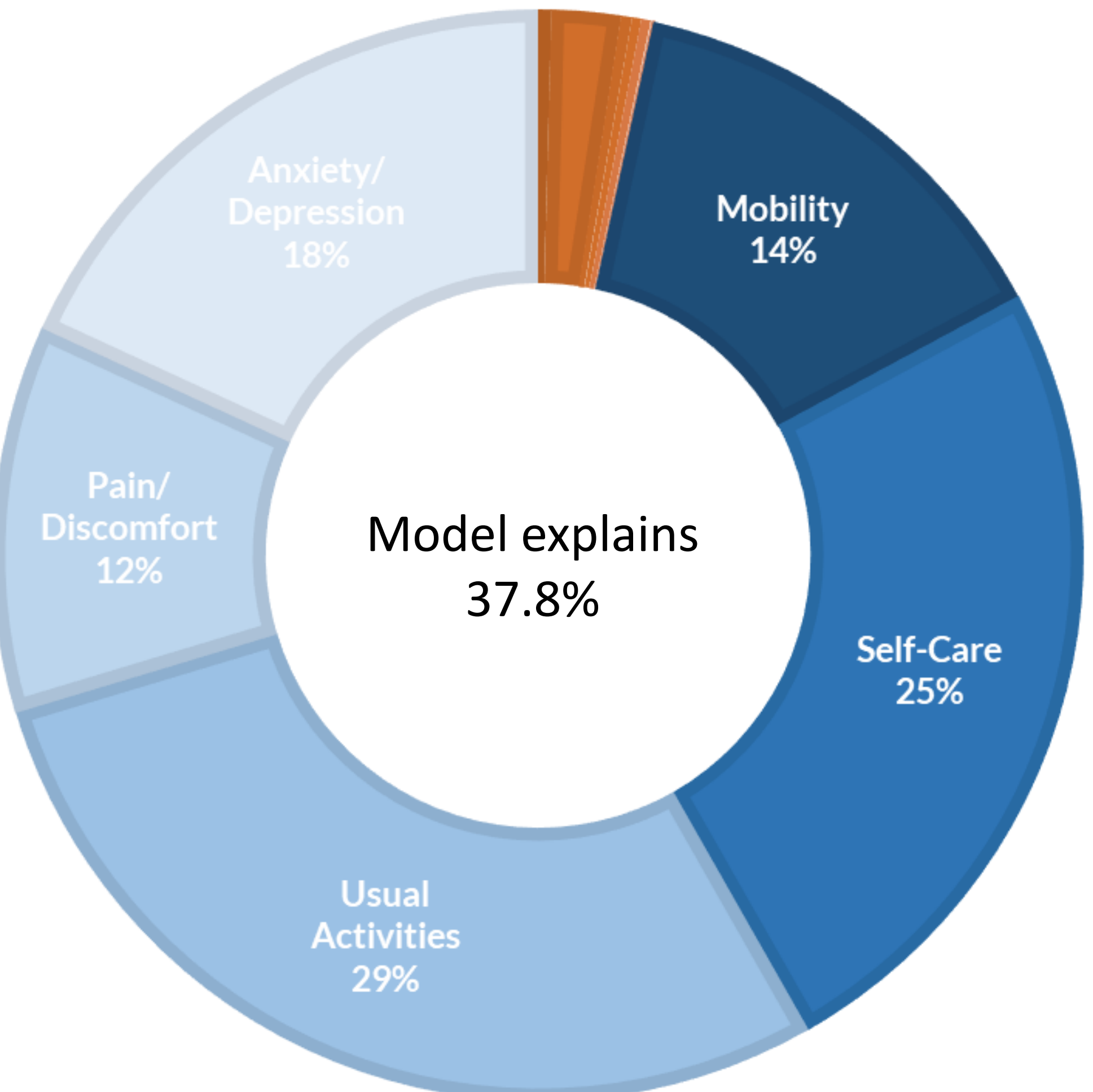
❖ General health concentration indices based on EQ-VAS with decomposition analysis by SES factors and by EQ-5D-5L dimension were estimated.

❖ Erreygers concentration indices were calculated for reported dichotomized responses 'no/any problem' ranked by class and by income and decomposed by further SES factors.

Table 1: General Characteristics of the Two Pilot Datasets

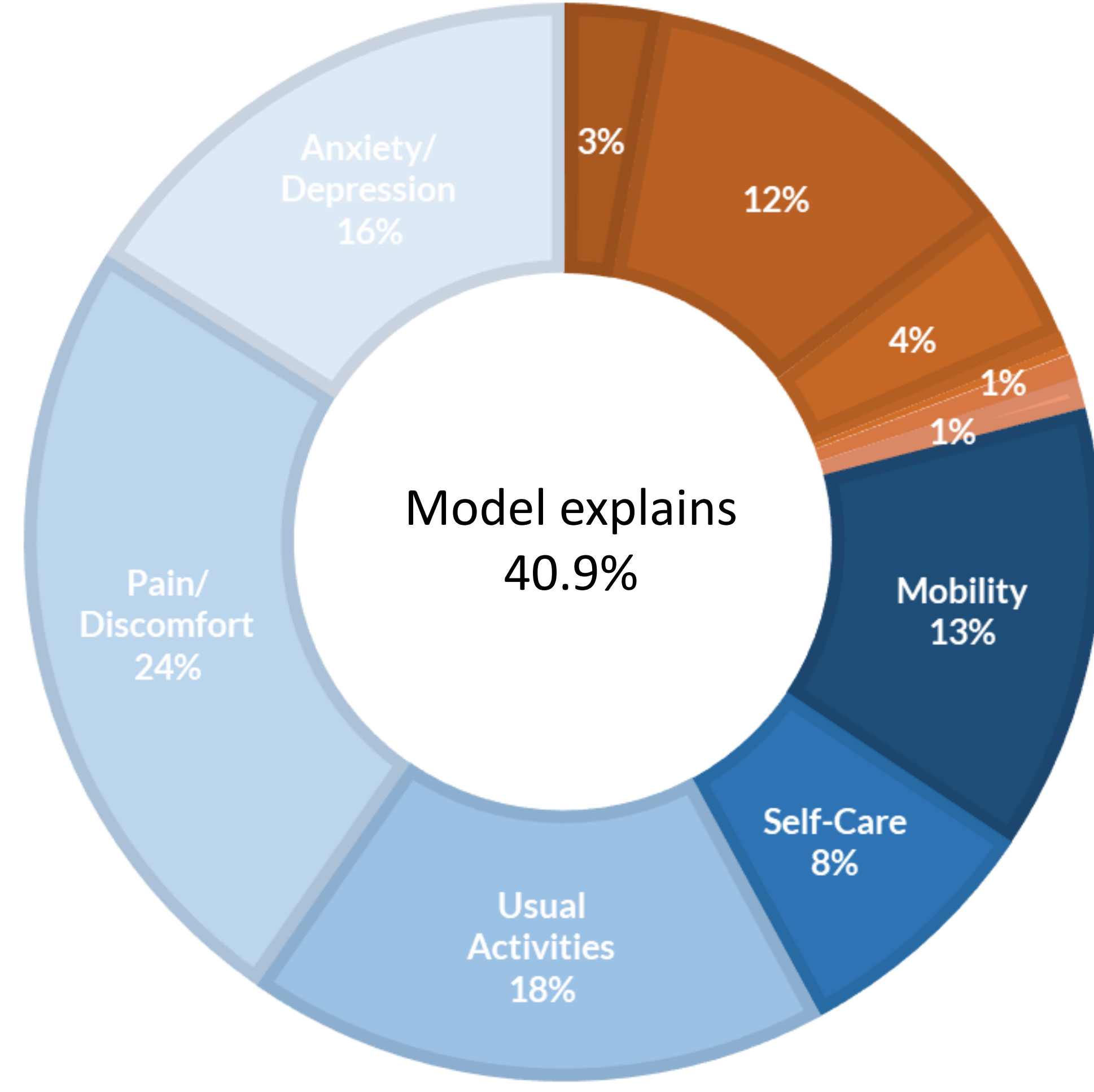|	Health Survey of England 2018 n (%)	Spanish National Health Survey 2011-2012 n (%)
Total n	10,250	21,058
n>18	7,991	18,871
Female	4,413 (55.22%)	10,279 (54.47%)
Age Categories		
≤44	3,009 (37.65%)	7,235 (38.34%)
54-64	2,728 (34.14%)	6,034 (31.97%)
65+	2,254 (28.21%)	5,602 (29.69%)
Family Status		
Single	1,409 (14.00%)	4,905 (25.99%)
Married/Cohabit	5,317 (52.85%)	10,043 (53.22%)
Seperated/Divorced/Widowed	1,264 (12.56%)	3,903 (20.68%)
Education		
NVQ4/NVQ5/Degree or equiv	2,267 (22.53%)	2,793 (14.80%)
Below degree	4,029 (40.04%)	10,649 (56.43%)
No qualification	1,651 (16.41%)	5,428 (28.76%)
Class (older version)		
I & II	3,158 (31.38%)	3,292 (17.44%)
III & IV	2,040 (40.05%)	6,069 (32.16%)
V & VI	380 (3.78%)	8,815 (46.71%)
Income		
Highest 3 income quintiles	4,861 (47.52%)	9134 (43.38%)
Lowest 2 income quintiles	3,496 (34.17%)	6517 (30.95%)
Other/NA	1,893 (18.50%)	5407 (25.68%)
EQ-VAS: mean (SD)	77.83 (18.19)	75.02 (19.18)
EQ-5D-5L LSS	89.22 (15.66)	92.25 (15.01)
5L: Profile Any Problems	4,339 (61.24%)	7,369 (39.05%)
5L: Mobility Any Problems	1,743 (24.33%)	3,544 (18.78%)
5L: Self-Care Any Problems	621 (8.67%)	1,608 (8.52%)
5L: Usual Activities	1,584 (22.08%)	2,758 (14.62%)
5L: Pain/Discomfort Any Problems	3,515 (49.15%)	5,576 (29.55%)
5L: Anxiety/Depression Any Problems	2,358 (33.02%)	3,185 (16.88%)

Health Inequalities by Key Socioeconomic Stratifiers

ENGLAND 2018

Model explains 37.8%

(Mobility 14%, Self-Care 25%, Usual Activities 29%, Pain/Discomfort 12%, Anxiety/Depression 18%)

SPAIN 2011-2012

Model explains 40.9%

(Mobility 13%, Self-Care 8%, Usual Activities 18%, Pain/Discomfort 24%, Anxiety/Depression 16%; 3%, 12%, 4%, 1%, 1%)

Legend: ■ Male ■ age 45-64 ■ age 65+ ■ Education No Qualification ■ Lowest income quintile ■ Class III & IV ■ Class V & VI ■ Single

Generalised Health Concentration Index

❖ The generalised health concentration index based on EQ-VAS was 0.124 in England and 0.130 in Spain. Sociodemographic factors explained 3.7% and 20.3% of the concentration index in England and Spain, while sociodemographic factors explained 37.8% and 40.9% of the concentration of reported problems along the EQ-5D-5L in England and Spain, respectively.

❖ Within the sociodemographic model, the lowest levels of income (48.4%) and education (15.6%) were the main relative contributors to the health concentration index in England, while it was age 65+ (58.6%) and lowest education level (16.88%) in Spain.

Erreygers Concentration Index

❖ The Erreygers concentration index based on any reported EQ-5D problems identified that the most important contributors to income related inequalities were being single (24.6%), middle level social class (19.1%), and age 65+ (15.72%) in England, and lowest social class (47.9%), age 65+ (19.2%), and lowest education level (11.3%) in Spain.

❖ The income related health concentration index based on EQ-VAS was also calculated and consistently identified the same main contributors as the Erreygers concentration index based analysis for each country.

Table 2: Contribution Across Methodologies

Health Survey of England 2018

	General (VAS)	General CI (VAS) ranked by income	General CI (VAS) ranked by class	Erreygers CI (Any problems) ranked by income	Erreygers CI (Any problems) ranked by class
Male	0.00%	-0.028	1.364	1.74	12.04
Reference Age 18-44					
age 45-64	1.52%	0.188	-0.467	-10.93	-2.52
age 65+	0.35%	-0.258	0.021	15.72	6.55
Education No Qualification	15.60%	-0.055	13.560	3.69	6.30
Lowest 2 income quintiles	48.40%		24.172		33.58
Reference Class II & III					
Class III & IV	8.66%	-0.316		19.10	
Class V & VI	4.52%	-0.001		0.04	
Reference Family Married/Cohabiting					
Family Single	13.38%	-0.415	17.148	24.64	31.60
family Seperated/Divorced/widowe	7.57%	0.007	1.210	-0.24	1.13

Spanish National Health Survey 2011-2012

	General (VAS)	General CI (VAS) ranked by income	General CI (VAS) ranked by class	Erreygers CI (Any problems) ranked by income	Erreygers CI (Any problems) ranked by class
Male	3.20%	-0.230	3.740	9.01	5.54
Reference Age 18-44					
age 45-64	9.50%	0.141	-14.591	-5.48	-10.47
age 65+	58.67%	-0.547	19.061	19.17	13.72
Education No Qualification	16.88%	-0.341	32.669	11.34	17.26
Lowest 2 income quintiles	2.46%		22.368		19.58
Reference Class II & III					
Class III & IV	0.00%	0.127		-5.34	
Class V & VI	1.84%	-1.164		47.93	
Reference Family Married/Cohabiting					
Family Single	1.22%	0.052	-3.362	-2.46	-0.53
family Seperated/Divorced/widowe	6.22%	-0.046	1.833	1.64	1.14

Conclusions

❖ Our analyses illustrated standardized reporting of inequality indicators based on the concentration index methodology using the EQ-5D-5L.

❖ The concentration index methodology is useful in terms of providing a single index measure and the ability to express the role of sociodemographic factors in terms of relative percentage values.

❖ While the concentration indices identified the presence of sociodemographic inequalities in health in both England and Spain, the countries differed in the relative role of individual factors suggesting a unique inequality profile for each country.

❖ Further investigation is needed to understand differences in EQ-VAS ratings and reporting 'any problem on EQ-5D' in general population surveys across countries and the impact of these differences on inequality measures based on them.