

The measurement performance of the EQ-5D-Y-3L and EQ-5D-3L in a Hungarian general population sample of adults

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The EQ-5D has separate versions for children/adolescents and adults, covering the same health dimensions but with different wording. This study aims to compare the measurement performance of the EQ-5D-3L (adult version) and EQ-5D-Y-3L (youth version) in an adult general population sample.



METHODS

Two independent surveys, a computer-assisted personal interview (n=200) and an online questionnaire (n=996) were conducted in 2021, representative of the Hungarian adult general population by gender and age groups. We compared the following measurement properties: ceiling, floor, relative informativity (Shannon's evenness index) and agreement (cross-tabulation and Kendall's rank correlation). Known groups were defined based on general health status and chronic health conditions, with validity being tested for mean level sum scores (LSS) and utility values (using Hungarian value sets).^{1,2}



RESULTS

Almost twice as many different health state profiles occurred in the EQ-5D-Y-3L compared to the EQ-5D-3L (85 vs. 47 out of 243), with 59.0% of respondents reporting identical health profiles on both measures. Full health was less frequently reported on the EQ-5D-Y-3L (34.8%) compared to EQ-5D-3L (46.8%). Ceiling was significantly lower for all corresponding dimensions of the EQ-5D-Y-3L except for self-care, with the largest difference in EQ-5D-Y-3L worried/sad/unhappy (56.8%) vs. EQ-5D-3L anxiety/depression (71.6%). All EQ-5D-Y-3L dimensions (0.20-0.75) demonstrated better relative informativity than those of EQ-5D-3L (0.18-0.66). Strong agreement was found between corresponding dimensions with Kendall's tau coefficients ranging from 0.636 (worried/sad/unhappy vs. anxiety/depression) to 0.841 (mobility) (Table 1).

Table 1. Ceiling, floor, informativity and agreement

Dimensions	Ceiling n (%)				Absolute informativity (H')		Relative informativity (J')		Agreement
	Y-3L	3L	Absolute ceiling reduction (pp)	Relative ceiling reduction (%)	Y-3L	3L	Y-3L	3L	(Kendall's tau)
Mobility *	874 (73.1)	893 (74.7)	1.6	2.1	1.04	0.84	0.65	0.53	0.841
Looking after myself / Self-care	1139 (95.2)	1142 (95.5)	0.3	0.3	0.31	0.28	0.20	0.18	0.745
Doing usual activities / Usual activities *	991 (82.9)	1014 (84.8)	1.9	2.3	0.76	0.65	0.48	0.41	0.721
Having pain/discomfort / Pain/discomfort *	675 (56.4)	741 (62.0)	5.6	8.9	1.13	1.05	0.71	0.66	0.764
Feeling worried, sad or unhappy / Anxiety /depression *	679 (56.8)	856 (71.6)	14.8	20.7	1.19	0.96	0.75	0.61	0.636
Total/average	416 (34.8)	560 (46.8)	12.0	25.7	0.88	0.76	0.56	0.48	_

McNemar's test was used to assess the difference in ceiling between EQ-5D-Y-3L and EQ-5D-3L. All corresponding dimensions where there was a significant difference between the ceiling (p-value<0.05) are marked with asterisks.

Table 2. Known-groups validity of LSSs and utility values

		Relativ	e efficiency	Relative efficiency (utility values)		
	n (%)		(LSS)			
		RE a	95% CI ^b	RE a	95% CI ^b	
Self-perceived health status						
Excellent	102 (8.5)					
Very good	321 (26.8)					
Good	489 (40.9)	1.064	0.890-1.252	0.959	0.760-1.131	
Fair	244 (20.4)					
Poor	40 (3.3)					
lealth conditions						
Healthy	400 (33.5)	-	_	_	_	
Allergies	180 (15.1)	1.002	0.751-1.365	1.020	0.742-1.596	
Skin disease	88 (7.4)	1.031	0.722-1.575	1.094	0.732-2.017	
Hypertension	360 (30.1)	1.024	0.855-1.231	1.034	0.842-1.332	
Asthma, COPD	65 (5.4)	0.876	0.627-1.203	0.979	0.638-1.564	
Gastrointestinal disease	88 (7.4)	1.061	0.718-1.550	1.144	0.780-1.868	
Cancer	41 (3.4)	0.931	0.631-1.354	1.095	0.672-2.033	
Diabetes	118 (9.9)	1.136	0.879-1.489	1.239	0.938-1.758	
Osteoporosis	37 (3.1)	1.012	0.685-1.652	1.184	0.690-2.412	
Cardiovascular disease	139 (11.6)	1.048	0.860-1.302	1.185	0.929-1.572	
Musculoskeletal diseases	279 (23.3)	0.997	0.849-1.190	1.021	0.837-1.319	
Anxiety	81 (6.8)	0.708	0.556-0.883	0.824	0.609-1.162	
Depression	56 (4.7)	0.817	0.616-1.041	0.998	0.701-1.469	

CI confidence intervals, COPD chronic obstructive pulmonary disease, RE relative efficiency.

Reference:

¹Rencz F, Ruzsa G, Bató A, Yang Z, Finch AP, Brodszky V. Value Set for the EQ-5D-Y-3L in Hungary. Pharmacoeconomics. 2022 Dec;40(Suppl 2):205-215 ²Rencz F, Brodszky V, Gulácsi L, Golicki D, Ruzsa G, Pickard AS, Law EH, Péntek M. Parallel Valuation of the EQ-5D-3L and EQ-5D-5L by Time Trade-Off in Hungary. Value Health. 2020 Sep;23(9):1235-1245.

The two instruments were similar in terms of known-groups validity. Compared to the EQ-5D-3L, the EQ-5D-Y-3L had larger effect sizes in 62-69% of known groups. However, differences were significant in only one subgroup, where EQ-5D-3L LSSs performed better in differentiating between respondents with and without physician-diagnosed anxiety (Table 2).



This study highlights differences in measurement performance between EQ-5D-Y-3L and EQ-5D-3L in an adult general population sample, with the largest differences occurring between worried/sad/unhappy vs. anxiety/depression dimensions. Although EQ-5D-3L is recommended for adult use, EQ-5D-Y-3L also seems to be a suitable alternative, offering valuable information for assessing mental health.

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^a Relative efficiency compared to EQ-5D-3L

^b 2000 bootstrap samples with accelerated bias correction.