



ERASMUS UNIVERSITEIT ROTTERDAM

EQ-5D-5L or EQ-HWB-S: which is the better instrument for capturing spillover effects in parental carers of children with COVID-19?

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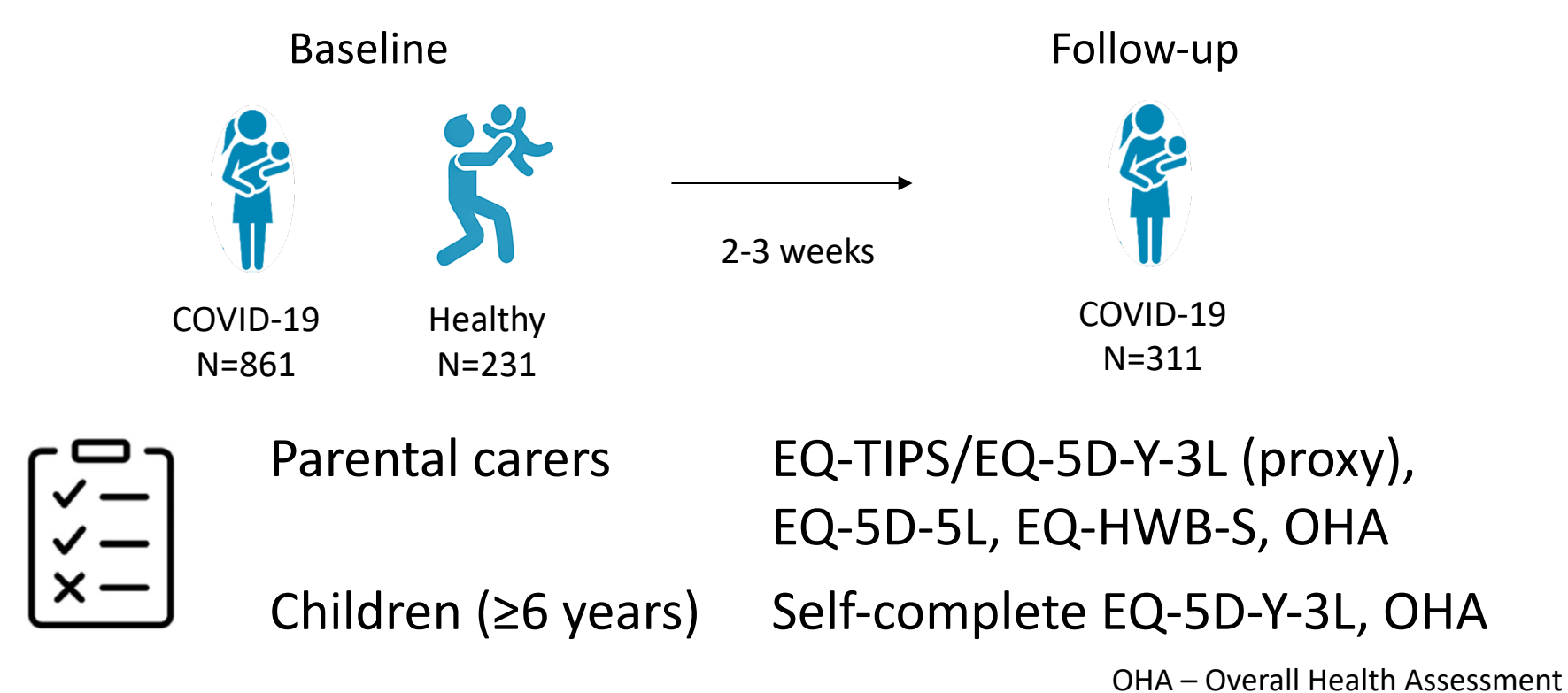


Objectives

The spillover effects on parents when caring for children with COVID-19: comparing the properties of the EQ-5D-5L and the EQ-HWB-S in measuring these spillover effects in the parents.

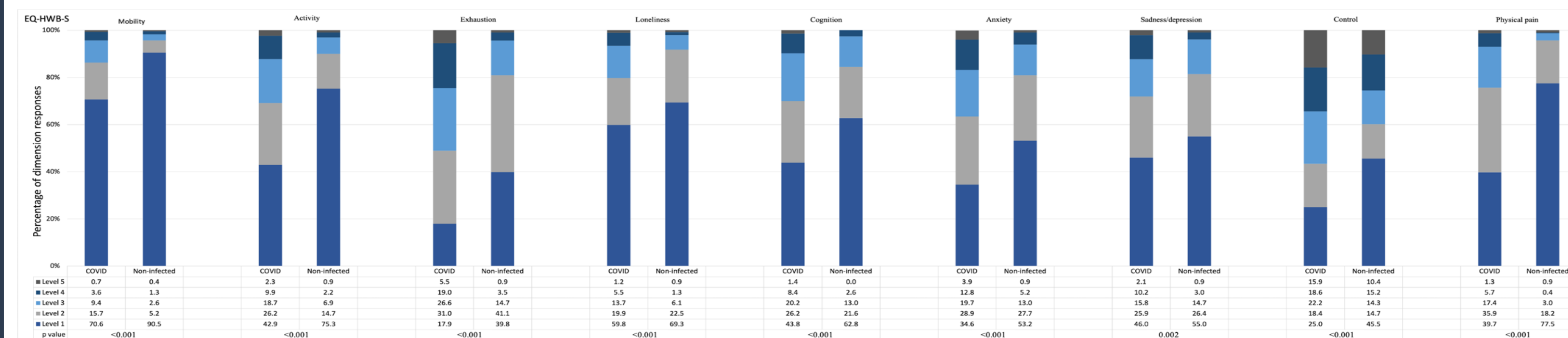
Methods

	COVID-19	Healthy
Parents	N = 861	N = 231
Mother	69.1%	73.2%
Urban	93.8%	86.6%
Age (SD)	36.0 (5.6)	35.4 (5.2)
COVID-19 positive	52.8%	6.9%
Children		
Age, mean (SD)	6.9(4.0)	6.6 (4.1)
0-3 years	26.7%	32.9%
4-5 years	17.2%	11.3%
6-18 years	56.1%	55.8%
Male	52.7%	56.3%
Illness duration(day)	10.9 (10.3)	-
COVID-19 severity		
Mild	36.1%	-
Moderate	45.2%	-
Severe	18.7%	-



Results

- Response distribution:** parents of COVID-19-infected children experienced more problems across all dimensions (all $p < 0.05$)
- Full health** in children with COVID-19:
EQ-HWB-S: 6.6%
EQ-5D-5L: 25.9%



- Known-groups validity** using generalized linear regression (only statistical significance variables presented):
 - Compared to EQ-5D-5L, **summary scores** of EQ-HWB-S discriminated better;
 - Individual dimensions: children's clinical condition impacted parents' physical functioning more than emotional well-being, especially in severe cases (results not presented).

- Test-retest reliability:**
 - EQ-HWB-S dimensions: fair to good (Gwet's AC1: 0.33–0.79);
 - EQ-5D-5L index: moderate to good (Gwet's AC1: 0.40–0.76);
 - EQ VAS: good (ICC: 0.70–0.77).

Table 1. Correlation between children's health status and parents' EQ-HWB-S/EQ-5D-5L index and EQ VAS

	EQ-HWB-S index score			EQ-5D-5L index score			EQ VAS		
	B	SE	p value	B	SE	p value	B	SE	p value
Child's COVID-19 infection									
No	REF			REF			REF		
Yes	-0.331	0.124	0.007	-0.568	0.174	0.001	-0.355	0.114	0.002
Child's COVID-19 severity									
Mild	REF			REF			REF		
Moderate	-0.183	0.102	0.072	-0.218	0.120	0.069	-0.076	0.094	0.421
Severe	-0.194	0.094	0.039	-0.258	0.128	0.043	-0.080	0.086	0.357
Daily caring time									
A little	REF			REF			REF		
A few hours	-0.308	0.073	<0.001	-0.155	0.096	0.107	-0.073	0.067	0.279
Most of the day	-0.410	0.102	<0.001	-0.183	0.132	0.165	-0.125	0.094	0.182
Impact on work									
A little	REF			REF			REF		
Some	-0.216	0.077	0.005	-0.088	0.103	0.392	-0.165	0.070	0.019
Lots	-0.324	0.097	0.001	-0.340	0.127	0.007	-0.324	0.088	<0.001
Child's illness duration									
	-0.017	0.003	<0.001	-0.013	0.004	0.002	-0.018	0.003	<0.001

Results

- Responsiveness:**
 - Parental health and well-being improved as children's health improved; EQ-5D-5L showing slightly higher responsiveness (ES: 0.77–0.87) than EQ-HWB-S (ES: 0.62–0.74);
 - The EQ-5D-5L showed higher sensitivity in the mental dimension, with ORs ranging from 4.70–7.22 for 'anxiety/depression', compared to 2.68–5.08 for EQ-HWB-S 'anxiety' and 'sadness/depression'.

Table 2. Responsiveness to improvements in children's health

	EQ-HWB-S index	EQ-5D-5L index	EQ VAS
Child's COVID-19 recovery, n=258			
Baseline Mean (SD)	0.72 (0.21)	0.69 (0.30)	62.0 (22.1)
Follow-up Mean (SD)	0.85 (0.14)	0.92 (0.17)	85.8 (12.9)
Effect size	0.62	0.77	1.08
Improved EQ-TIPS LLS, n=64 (<4y)			
Baseline Mean (SD)	0.69 (0.20)	0.68 (0.26)	58.5 (20.5)
Follow-up Mean (SD)	0.83 (0.13)	0.91 (0.16)	84.2 (14.0)
Effect size	0.74	0.87	1.25
Improved self-complete EQ-5D-Y-3L index, n=131 (≥6y)			
Baseline Mean (SD)	0.69 (0.22)	0.68 (0.30)	61.3 (22.2)
Follow-up Mean (SD)	0.85 (0.14)	0.93 (0.13)	86.6 (12.0)
Effect size	0.73	0.83	1.14
Improved child's proxy-report OHA, n=257			
Baseline Mean (SD)	0.70 (0.22)	0.67 (0.31)	62.7 (21.8)
Follow-up Mean (SD)	0.85 (0.14)	0.92 (0.16)	86.4 (11.4)
Effect size	0.68	0.81	1.09

Conclusion

- Both EQ-HWB-S and EQ-5D-5L pick up spillover effects.
- EQ-HWB-S outperformed in distinguishing social and emotional impacts of caregiving, while EQ-5D-5L better captured physical health improvements.
- The choice between tools may depend on study objectives.