

Assessing Internal Structure, Psychometric Properties, and Explanatory Power of Self-Complete EQ-5D-Y and CHU-9D in Children with Specific Phobia

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Background

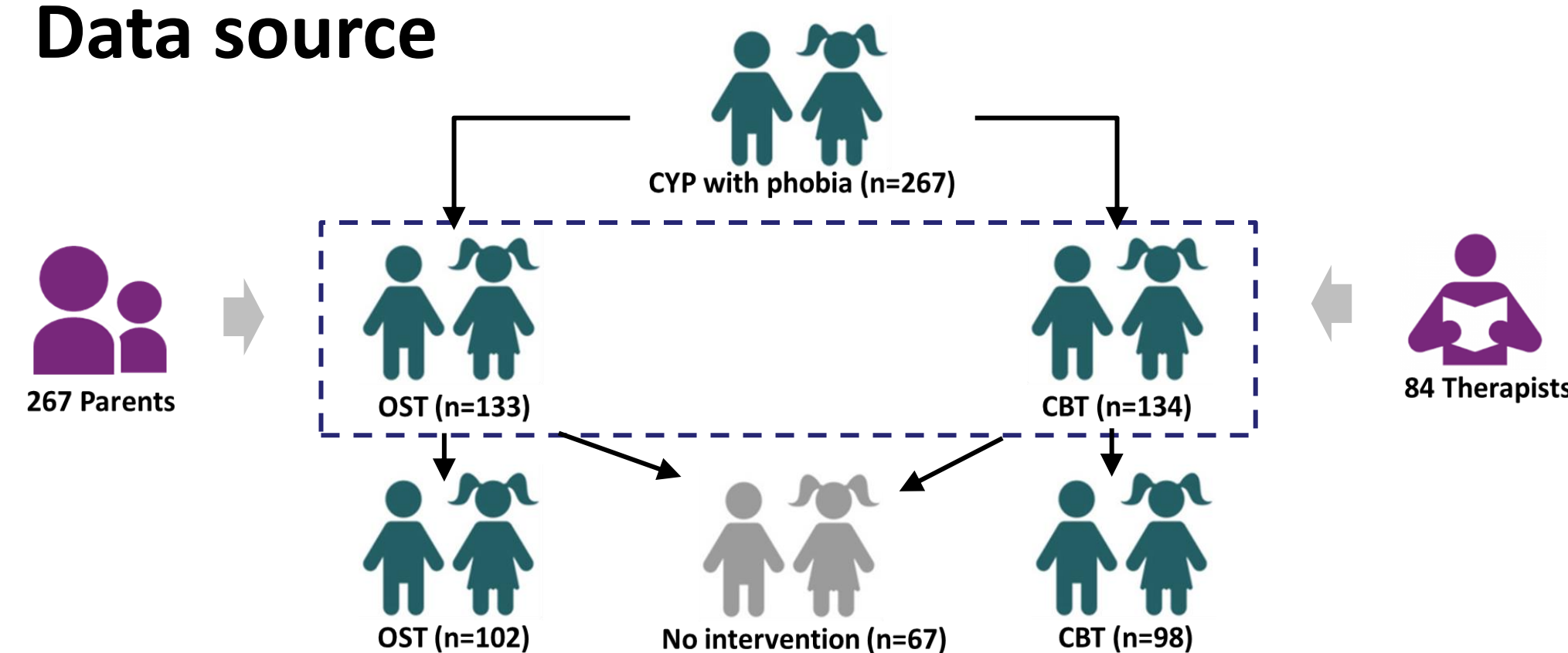
- EQ-5D-Y-3L is commonly used in clinical trials to measure health-related quality of life for children and/or young people (CYP).
- Very few studies have compared EQ-5D-Y-3L and CHU-9D, recommending CHU-9D, but none have focused on mental health.

Objective

- Investigate the internal structure, psychometric performance, and explanatory power of the self-completed EQ-5D-Y-3L compared to the CHU-9D.

Methods

Data source



Outcome measurements

- EQ-5D-Y-3L (self-report; Dutch value set)
- CHU-9D (self-report; UK value set)
- RCADS-C (Revised Children's Anxiety and Depression Scale-Children)
- RCADS-P (Revised Children's Anxiety and Depression Scale-Parents)
- SUDS (comprises subjective units of distress)
- ADIS (anxiety disorder interview schedule)

Analysis

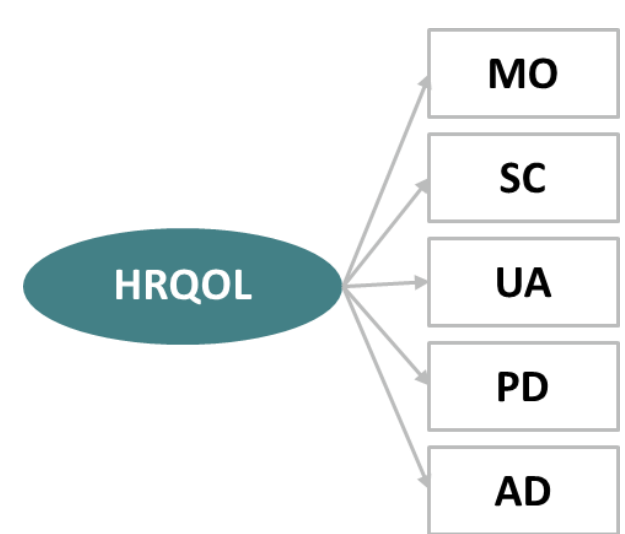
- Internal structure (focus on EQ-5D-Y only)
- Acceptability (EQ-5D-Y vs. CHU-9D)
- Convergent validity (EQ-5D-Y vs. CHU-9D vs. RCADS-C/P)
- Responsiveness (EQ-5D-Y/CHU-9D vs. RCADS-C/P)
- Known-group validity (EQ-5D-Y/CHU-9D vs. RCADS-C/P)
- Explanatory power (EQ-5D-Y/CHU-9D vs. RCADS-C/P)

Data from Alleviating Specific Phobias Experienced by Children Trial (ASPECT) (n=267), the first to measure health-related quality of life for full range of specific phobias.

Results

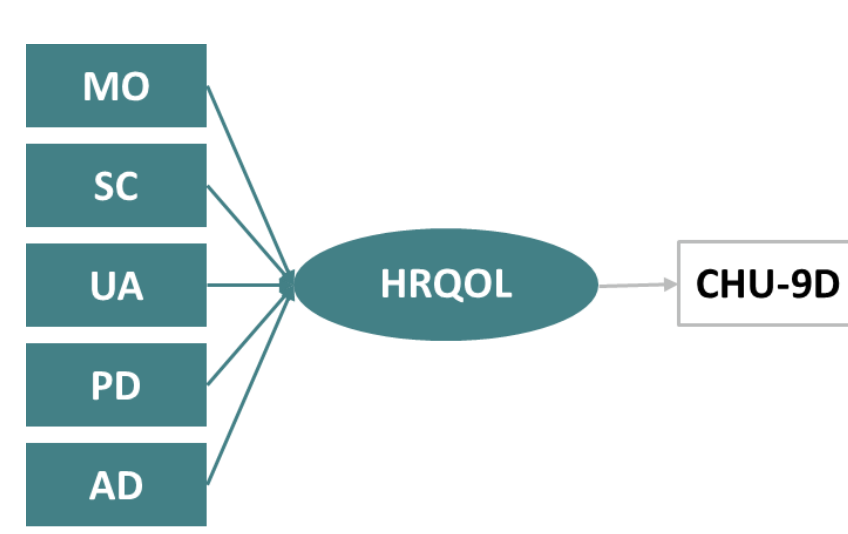
1 Internal structure Internal model (Model 3) shows the best fit.

Model 1: CFA



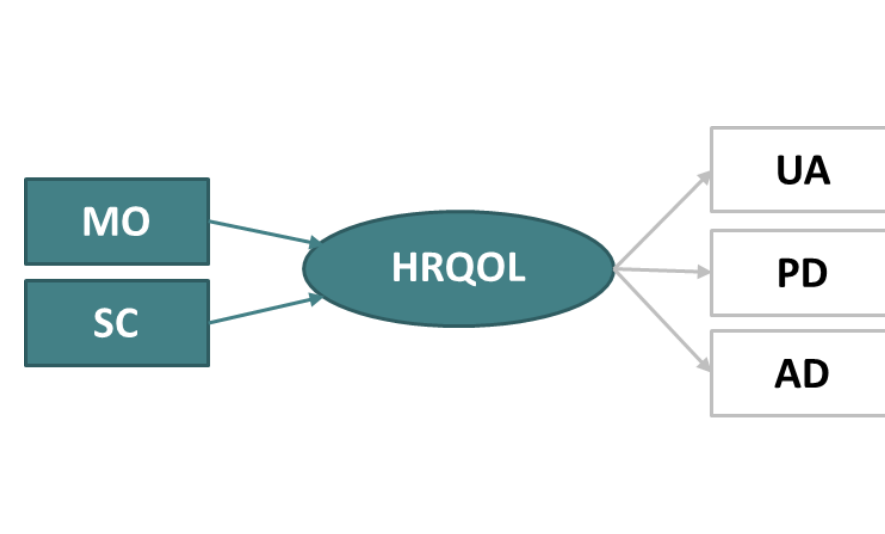
χ^2 (df) 13.96 (df=5)
RMSEA 0.10
CFI 0.95
TLI 0.90

Model 2: External MIMIC



χ^2 (df) 235.23 (df=10)
RMSEA 0.11
CFI 0.49
TLI 0.73

Model 3: Internal MIMIC



χ^2 (df) 17.04 (df=9)
RMSEA 0.06
CFI 0.93
TLI 0.98

MO (Mobility); SC (Looking after myself); UA (Usual activity); PD (Pain / discomfort); AD (Worried / sad / unhappy)

2 Psychometric properties

- Acceptability (non-complete rate)

EQ-5D-Y-3L: 0.4% at baseline and 0.0% at 6 months

CHU-9D: 0.8% at baseline and 1.6% at 6 months

- Convergent validity

EQ-5D-Y-3L items: correlated well with expected items of CHU-9D.

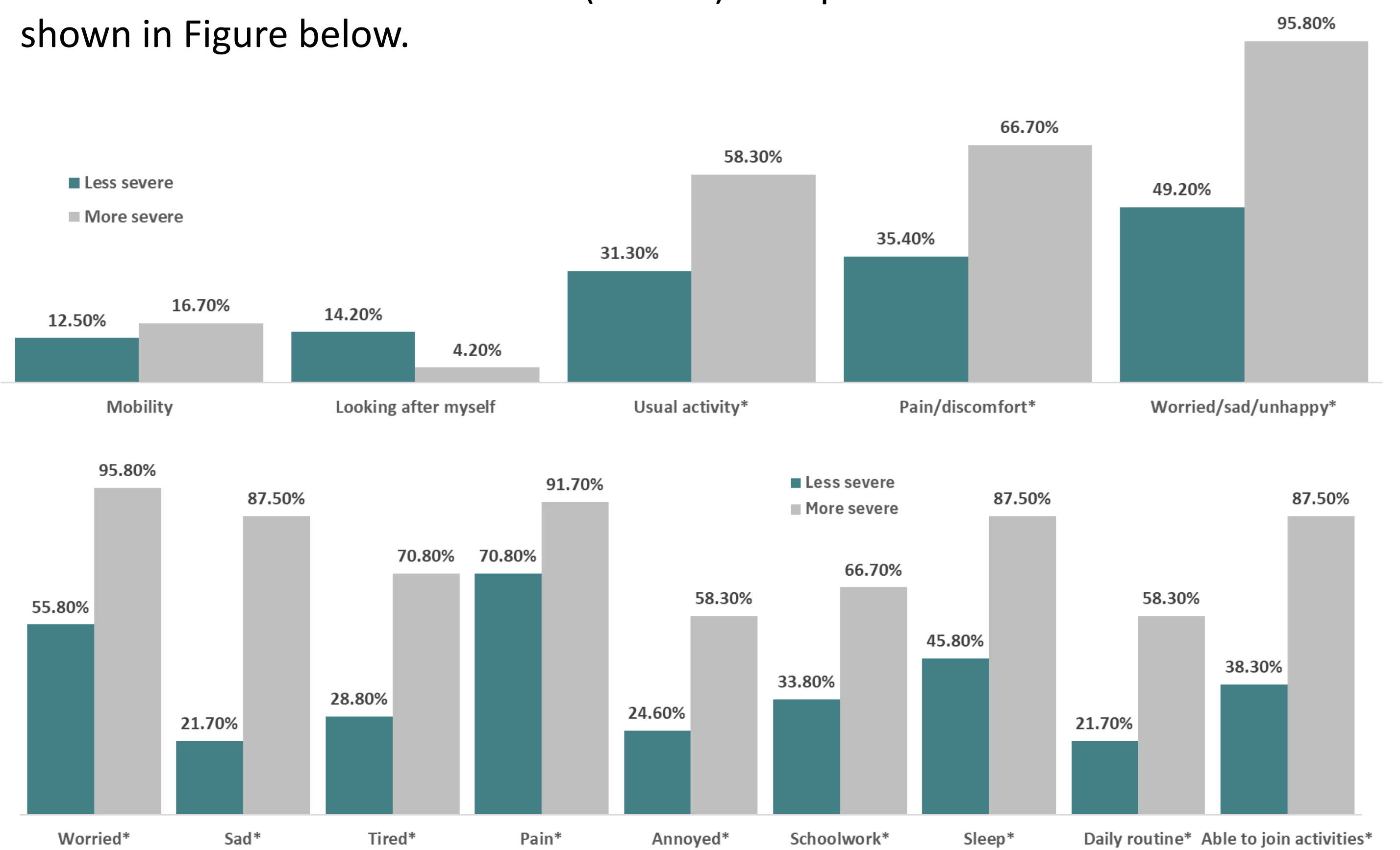
Utility scores: both have high correlation with RCADS scores (> 0.5) and weak correlation with SUDS (<0.02) and ADIS (<-0.18)

- Responsiveness

Defined by RCADS-C/P change, both EQ-5D-Y and CHU-9D exhibited good responsiveness, with CHU-9D showing a larger effect size (ES = 0.90) than EQ-5D-Y-3L (ES = 0.68).

- Known-group validity

EQ-5D-Y and CHU-9D had strong effect sizes across RCADS-C/P (ES: 0.9-1.7) and smaller ES across SUDS and ADIS (0.2-0.4). The performance of each item was shown in Figure below.



3 Explanatory power

	EQ-5D-Y-3L index (NL)	EQ VAS	EQ-5D-Y-3L 5 dimensions	CHU-9D score	CHU-9D 9 items
RCADS-C	0.31	0.18	0.34	0.45	0.54
ADIS	0.01	0.00	0.00	0.00	-0.01
SUDS	0.02	0.00	0.06	0.01	0.05

Both EQ-5D-Y and CHU-9D explained certain variance of RCADS-C.

Discussion

- First comprehensive study examining the internal structure and psychometric properties of EQ-5D-Y-3L in CYP with specific phobias.
- The internal structure of EQ-5D-Y-3L in CYP with phobia differs from the adult version (EQ-5D), with MO and SC as formative indicators affecting HRQoL, and UA, PD, and AD as reflective indicators influenced by HRQoL.
- Both EQ-5D-Y-3L and CHU-9D demonstrated good level of psychometric properties in the phobia CYP cohort, with CHU-9D having slightly better performance. However, cornering the number of domains, EQ-5D-Y-3L is comparable with CHU-9D.
- The study demonstrated that EQ-5D-Y-3L and CHU-9D are more related to RCADS-C/P than clinical indicators SUDS and ADIS. This finding might be able to assist clinicians and researchers in selecting suitable measures in their future assessment or research.
- In the current study RCADS-C/P was chosen to be the main comparator due to the absence of a gold standard. Future study should further validate this findings!