Capabilities of Upper Extremity Instrument (CUE)

- measures functional limitation and assesses the amount of difficulty experienced in performing specific actions with one or both arms and hands in individuals with tetraplegia.
- Questions focus on the individuals’ ability to reach or lift; pull and push with their arms; move and position their arm and wrist; use their hand and fingers; and press with the tip of the index finger.

ICF Domain:
Activity – subcategory: Mobility.

Number of Items:
32 total (15 unilateral – left and right, and 2 bilateral).

Instructions for Administration and Scoring:

Administration:
- clinician-administered; interview format (can be in-person or over telephone)
- takes about 30 minutes to complete.

Equipment: None.

Scoring:
- Responses are given on a 7-point scale representing self-perceived difficulty in performing the action, with scores ranging from 1 (unable to perform) to 7 (can perform without difficulty).
- Responses are summed to give a total score (ranges from 32 to 124).
- Left and right arm/hand function can be derived separately.
- A percent of normal function score is also possible using the following algorithm (total score – 32) / 192 * 100%.

Interpretability:

MCID: not established
SEM: for an SCI sample (n=154, 140M/14F, mean (SD) age: 36.7 (11.1) yrs, tetraplegia):
SEM=12.2 (Marino et al. 1998)
MDC: for an SCI sample (n=154, 140M/14F, mean (SD) age: 36.7 (11.1) yrs, tetraplegia):
MDC=33.8 (calculated from data in Marino et al. 1998)
- Item by item results of the test are straightforward to interpret.
- Total scores range from 32 to 124 with higher scores reflecting better function.
- No cut-points or normative data have been established for the SCI population
- Published data for the SCI population is available for comparison (see the Interpretability section of the Study Details sheet).
Clinical Considerations:

- The CUE has considerable potential clinical appeal because it reflects hand and/or arm function and scores can be derived for either limb, which is appealing given the number of individuals with incomplete injuries.
- The method of item generation (discussions with physical and occupational therapists, with patients, colleagues and experts in scale design) would suggest the CUE is likely to be widely accepted with therapists and individuals with an SCI.

Measurement Property Summary:

# of studies reporting psychometric properties: 2

Reliability:
- Internal consistency for the CUE is excellent (Cronbach’s α=0.96),
- Test-retest reliability for the total CUE score is excellent (ICC=0.94).

[Marino et al. 1998]

Validity:
- Different unilateral motor levels were significantly different (P<.001) except for those adjacent with each other.
- Correlation of the CUE is excellent with:
  - Functional Independence Measure (Spearman’s ρ=0.798)
  - Upper Extremity Motor score (Spearman’s ρ=0.798)
  - GRASSP-Sensation subscale (Spearman’s ρ=0.77)
  - GRASSP-Strength subscale (Spearman’s ρ=0.76)
  - GRASSP-Prehension subscale (Spearman’s ρ=0.83).


Responsiveness:
No values were reported for the responsiveness of the CUE for the SCI population.

Floor/ceiling effect:
- One item (item-left hand-5) on the CUE had a borderline floor effect.

[Marino et al. 1998]

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