Assessing Cognition using the Cognitive Linguistic Quick Test Plus (CLQT+)

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Cognitive Linguistic Quick Test – Plus (CLQT+)

- Approx 15-30 mins to administer
- Ages 18-89
- The CLQT was designed to quickly assess strengths and weaknesses in five cognitive domains: attention, memory, executive functions, language and visuo-spatial skills
- Option of administering “plus” version for people with aphasia
- 10 subtest in traditional administration, 11 subtests in “plus” (aphasia) administration
- Original published in 2001, Plus version in 2017
- Cost: Complete Kit = $490
  Record Forms (25 pack) = $175
  CLQT+ Stimulus book (if adding to original kit) = $219

CLQT(+) Subtests

- Personal facts
- Symbol cancellation*
- Confrontation naming
- Clock drawing
- Story retelling
- Symbol trials*
- Generative naming
- Design memory
- Mazes*
- Design generation
- Semantic comprehension**

* Additional points scored for following auditory directions within this task for the Aphasia Administration

** This subtest is only administered when using the Aphasia Administration

CLQT Tasks & Cognitive Domains

Traditional Administration

- Criterion-referenced
- Severity ratings for two age categories (ages 18-69 and 70-89)
- Severity ratings are mild, moderate, severe and WNL for each of the 5 cognitive domains
- A total Composite Severity Rating and a Clock Drawing Severity Rating serve as a neurocognitive screener

Aphasia Administration

- Criterion-referenced
- Severity ratings for two age categories (ages 18-69 and 70-89)
- Severity ratings are mild, moderate, severe and WNL for
  - Non-linguistic cognition index
  - Linguistic/aphasia index
  - Separate clock drawing severity rating

Picking a tool to help answer… (referral questions)

1. “I need a screening tool for rehab in acute care prior to Psych evals.” (SLP / OT / PT)
2. “I need a tool that helps detect early cognitive decline which may present as other conditions.”
3. “I need a tool that I can use for progress monitoring.”
4. “I need something that informs intervention planning.”
5. “I need a tool that can assess cognition in clients with aphasia.”
Traditional vs. Aphasia Administration

When administering the CLOTT to someone who has diminished language capability:

- Administer the original ten tasks
- Take note of any modifications indicated in the instruction banner at the beginning of each subtest on the Record Form.

Also:
- Complete the examiner-rated items in the Symbol Cancellation, Symbol Trails and Mazes subtests
- Administer the Semantic Comprehension task
- Calculate the Auditory Comprehension score

Symbol Cancellation Scoring

Confrontation Naming:

1. Deficits in confrontation naming are a key symptom of aphasia that can result from various forms of brain damage (e.g., stroke, head injury, dementia, tumors, infections).
2. Delayed responses suggest mild word retrieval problems. Note immediate or delayed perseverations, repeated responses for all or part of a previous word.
3. Although no points are deducted, an elaborated response may be symptomatic of verbosity or inability to limit information.
4. Ask the examinee to give a single word response. Use of seldom-used words may be a symptom of word-finding problems. Request a “common name.” The types of errors examinees make can guide treatment of word-retrieval problems.

Scoring Clock Drawing

Story Retelling (cont.)

Personal Facts

Personal Facts

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<th>Responses</th>
<th>Score</th>
<th>Language rating</th>
<th>Auditory Memory rating</th>
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</table>

1. Note of any modifications indicated
2. Examinees are asked to draw the face of the clock and note the numbers as indicated, with the numbers placed in a random order.
Symbol Trails (Trial 1)

**Symbol Trails**

**Trial 1: Circles by Size**

**Directions:** Please page 1 of the Response Book (Trial A) and draw a line to the next big now and draw a line to the next biggest. Turn to page 2 of the Task B and draw a circle to the next big. 

**Note:** 
- **To the examiner:** If the examiner asks for additional help, say, “I'm not allowed to help you. Just do the best you can.” If the examinee is still working after 2 minutes, say, “Okay, time is up.” 
- **To the examiner:**

**Design Memory**

**Design Memory**

**Trial 1**

**Directions:** Please page 1 of the Stimulus Manual to the examinee, so the designs are presented randomly. 

**Note:**
- **To the examiner:** If the examinee asks for additional help, say, “I'm not allowed to help you. Just do the best you can.” If the examinee is still working after 2 minutes, say, “Okay, time is up.” 
- **To the examiner:**

**Scoring Generative Naming**

**Animals**

**Scoring Mazes**

**Scoring Design Generation**

**Semantic comprehension (Aphasia Administration Only)**

**Auditory Semantic Comprehension Score**

- **I have done it:**
- **I am pulled up and down:**
CLQT(+) Scoring

- Use scoring worksheet on back of form to calculate the adjusted domain/index score and then determine severity rating based on chart.

- Traditional administration yields severity ratings based on criterion cut scores for 5 domains (attention, memory, executive functioning, language and visuospatial skills) as well as a composite severity rating and a separate clock drawing severity rating.

- Aphasia administration yields severity ratings based on criterion cut scores for a non-linguistic cognition index and a linguistic/aphasia index as well as a separate clock drawing severity rating.

Scoring – Worksheet 1

Scoring – Worksheet 2 (optional)

Scoring – Worksheet 3

Scoring – Transfer to front of form

Development of new tasks

1. Picture stimuli for the Semantic Comprehension task were taken from the Confrontation Naming task.
   - Verbal stimuli were developed to elicit nonverbal responses so that examinees can demonstrate their knowledge free from the requirements of expressive language.

2. CLQT users participated in a study to collect responses on the Semantic Comprehension task, as well as the other CLQT+ tasks.
   - Clinicians were asked to target people diagnosed with only a left hemisphere stroke and probable aphasia.

3. A split-half reliability estimate was calculated for the Auditory Comprehension task using the Spearman-Brown formula (r = .91).
Task Means and Standard Deviations of the CLQT Aphasia Sample and Nonclinical Research Sample

Clinical Sample of Individuals With Aphasia Compared to Matched Control

Interpreting CLQT+ Index Scores for Aphasia Administration

Non-Linguistic Cognition Index (NLCI)
- Provides an estimate of cognitive functioning that is free of language demands when responding to task items.
- Intended to provide a more appropriate estimate of cognitive ability for those individuals with diminished language skills.
- The severity ratings (i.e., Within Normal Limits, Mild, Moderate, Severe) for this domain are based on the same representative population used to evaluate the other CLQT domain scores (i.e., Attention, Memory, Executive Functions, Language, Visuospatial Skills).
- The tasks included in the NLCI are the same as the Visuospatial Skills domain score (i.e., Symbol Cancellation, Symbol Trails, Design Memory, Mazes, Design Generation).
- Contribution of each task score to the overall NLCI varies somewhat (compared to Visuospatial Skills), and are based on the author’s clinical experience.

Linguistic/Aphasia Index (L/AI)
- L/AI includes scores from Personal Facts, Confrontation Naming, Story Retelling, Generative Naming, and Auditory Comprehension.
- The Auditory Comprehension score plays a primary role in the L/AI score; it contributes up to approximately one-third of the score’s total raw score points (i.e., up to 19 of 56 total points).
- The L/AI includes expressive and receptive language components, both of which are important when working with individuals who have diminished language capacity.
- Severity Rating cut scores for this index score are based on a population of individuals with aphasia.
- Lower L/AI scores (i.e., more severe scores) indicate more significant problems with language comprehension and language expression.
Clinical utility of the CLQT(+)  
- Quick assessment of cognitive function  
- Monitor changes over time  
  - Improvements for non-progressive disorders (e.g. CVA, ABI)  
  - Declines in progressive disorders (e.g. dementia)  
- Can be used to identify specific areas of cognition that require further assessment  
- To guide intervention planning and goal setting  
- Can be used as part of an off-road driving assessment  
- Can be used as a competency assessment to differentiate cognitive ability from language disorder in clients with aphasia

Strengths and weaknesses

Strengths  
- Provides a quick way to screen cognition without requiring additional items (can be completed bedside)  
- Aphasia administration allows for differentiation between cognitive delays and language delays  
- Sensitive to change (improvement or decline)

Weaknesses  
- Not a comprehensive assessment – would need to do more in depth assessment based on outcome  
- A few of the items require drawing so might be difficult if client has hemiplegia on dominant side

Thanks for your attention!  
Any questions?

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