Validity And Reliability of The Chicago-Quick Hand Function Test

ABSTRACT

Study Design: Clinical measurement and normative study.

Level of Evidence: II.

Background: The Chicago-Quick Hand Function Test (C-QHFT) is a brief performance-based measure of unilateral hand function. Before widespread use, evidence of validity, reliability, and normative performance is required.

Objective: To evaluate content and face validity, inter-rater reliability, intra-rater reliability, test–retest reliability, and normative reference values for the C-QHFT.

Methods: This four-phase study included expert review, iterative refinement of administration and scoring procedures, normative sampling, and repeated administrations across multiple sites. Content and face validity were assessed through structured expert feedback. Reliability was examined using intraclass correlation coefficients, standard error of measurement, minimal detectable change, and Bland–Altman methods. Normative data were collected from healthy adults aged 18 years and older, stratified into age groups.

Results: Expert reviewers supported strong content and face validity (S-CVI/Ave = 0.95). Inter-rater reliability for the total score was excellent (ICC [3,1] = 0.999) and intra-rater reliability was high (ICC [1,1] = 0.946), with small SEM and MDC_{95} values. Test–retest reliability, quantified using ICC (2,1) and Pearson correlations, showed moderate to high stability (r = 0.67–0.82) and narrow Bland–Altman limits of agreement for both hands. Age-stratified normative values derived from ANOVA/MANOVA demonstrated expected age-related slowing of performance.

Conclusions: The C-QHFT demonstrates strong validity evidence, excellent inter-rater and intra-rater reliability, and stable test–retest performance. The normative reference values enhance its

clinical and research utility. The C-QHFT is a concise and reliable assessment of unilateral hand function for adult populations.

Keywords: hand function, in-hand manipulation, reliability, test–retest, normative data, upper extremity assessment