

Validity of the Weekly Calendar Planning Activity on Measurement of Executive Function for Adults With Stroke

Chen Gong, MSc¹, Ninghua Wang

¹Peking University First Hospital, Beijing, China

DOI: 10.5014/ajot.2022.76S1-PO13

Date presented: April 1, 2022

Primary Author and Speaker: Chen Gong, cgong104@usc.edu

PURPOSE: Executive function (EF) difficulties adversely affect stroke survivors' daily functioning (Shea-Shumsky et al., 2019). Neuropsychological tests are commonly used in EF assessment among stroke, which are considered to lack ecological validity (Chan et al., 2008). Weekly Calendar Planning Activity (WCPA) is a recently developed standard performance-based test to measure EF in the context of a real-world task (Toglia, 2015), which is valuable to post-stroke functional cognition measurement. However, there is no study on the validity of the WCPA for adults with stroke. Therefore, the aim of this study is to establish the validity of the Chinese version of the WCPA in adults with stroke by (1) comparing the WCPA performance between patients with stroke and healthy controls (HC); (2) analyzing the correlation between WCPA performance and neuropsychological tests performance; (3) analyzing the correlation between performance on the WCPA and performance on an assessment of Instrumental Activities of Daily Living (IADL).

DESIGN: A cross-sectional study was conducted on 58 hospitalized patients diagnosed with stroke confirmed by CT/MRI and 53 HC matched with age, gender and education in China. The stroke group included 77% male and ages 26 to 82 years (M = 60.40, SD = 11.20).

METHOD: Participants were administered (1) the short version of the Weekly Calendar Planning Activity (WCPA-10), which is designed for potentially low-functioning clients to evaluate EF; (2) the Trail Making Test (TMT) Part A and B, and the Animal Naming Test (ANT) as neuropsychological tests; (3) Lawton and Brody IADL scale to measure IADL. In addition to the intergroup comparison between the stroke group and HC group, participants with stroke were subdivided into two groups based on the Montreal Cognitive Assessment (MoCA) total score. Participants with a score below 26 were included in the cognitive impaired group (CI), and other participants were included in the general stroke group. Differences in the WCPA performance between the three groups were further compared.

RESULTS: The stroke group had significantly fewer numbers of accurate appointments (U = 400.0, Z = -6.7, p = .00), numbers of entered appointments (U = 529.0, Z = -6.1, p = .00), rules followed (U = 664.0, Z = -5.3, p = .00), strategies used (U = 595.0, Z = -5.7, p = .00), self-recognized errors (U = 840.0, Z = -4.5, p = .00), and more numbers of errors than the HC group (U = 2114.5, Z = 3.5, p = .00). Total time required for completion (14-15 minutes) and planning time were similar between the two groups. The CI group had lower accuracy (H = 28.9, Z = -3.3, p = .00) than the general stroke group, and the general stroke group had lower accuracy (H = 22.6, Z = -2.7, p = .00) than the HC group. In the stroke group, accuracy (rs = -.45, p = .000), numbers of entered appointments (rs = -.52, p = .000), planning time (rs = -.67, p = .000) were moderately correlated with TMT-A time; numbers of entered appointments (rs = -.67, p = .000), accuracy (rs = -.58, p = .000), planned time (rs = -.71, p = .000) were moderately correlated with TMT-B time; accuracy (rs = -.50, p = .000), numbers of entered appointments (rs = .52, p = .000), planning time (rs = -.67, p = .000) were moderately correlated with ANT; Moderate significant correlations were found on numbers of entered appointments (rs = .55, p = .000) and accuracy (rs = .51, p = .000) with IADL score.

CONCLUSION: This study provides evidence for the validity of the WCPA-10 for adults with stroke. WCPA-10 is a valuable tool for assessing EF among stroke because it can provide in-depth information on the process and quality of performance. This study also demonstrates the need to use performance-based tests even in patients who perform normally on cognitive screening tests to detect subtle EF difficulties that may affect daily functioning.

References

- Chan, R. C., Shum, D., Touloupoulou, T., & Chen, E. Y. (2008). Assessment of executive functions: review of instruments and identification of critical issues. *Archives of clinical neuropsychology: the official journal of the National Academy of Neuropsychologists*, 23(2), 201–216. <https://doi.org/10.1016/j.acn.2007.08.010>
- Shea-Shumsky, N. B., Schoeneberger, S., & Grigsby, J. (2019). Executive functioning as a predictor of stroke rehabilitation outcomes. *The Clinical Neuropsychologist*, 33(5), 854–872. <https://doi.org/10.1080/13854046.2018.1546905>
- Toglia, J. (2015). *Weekly Calendar Planning Activity (WCPA): A performance test of executive function*. Bethesda, MD: AOTA Press.