VALIDITY OF THE MULTIPLE ERRANDS TEST

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QUESTION

What is the validity of the Multiple Errands Test (MET)?

RESULTS

ONLINE RESOURCES (GREY LITERATURE)

Patnaude, M., et al. (2023). **Rehabilitation Measures Database: Multiple Errands Test.** Link.

- Analysis of various MET subtypes for different populations; neurological disorders, stroke, Parkinson's disease, Alzheimer's & dementia, and mixed populations. Tested inter-rater/intra-rater reliability, internal consistency, criterion validity and construct validity.

Vancouver Coastal Health and Providence Health Care, Occupational Therapy Practice. (2020). **Occupational Therapy Cognitive Assessment Inventory.** Link.

- Pg. 15 – 16. Includes overview of MET and subtypes with psychometrics; reliability and validity, pros, and cons for the test's application.

Poulin, V., et al. (2013). **Multiple Errands Test (MET).** Link.

- Review of the test in relation to stroke patients. Analysis of psychometric properties; reliability, validity, and responsiveness. Includes information about acceptability of the test as well a feasibility to perform test.

PEER-REVIEWED LITERATURE – MOST RECENT FIRST

Articles are grouped by theme:

- Multiple Errands Test (MET)
- Multiple Errands Test – Simplified Version (MET-SV)
- Multiple Errands Test – Revised (MET-R)
- Multiple Errands Test - Generic (MET-G)
- Virtual Multiple Errands Test (V-MET)
- Baycrest Multiple Errands Test (BMET)
- Oxford Digital Multiple Errands Test (OxMET)
- Multiple Errands Test Home (MET-HOME)
- Youth Multiple Errands Test (yMET)
- Modified Multiple Errands Test for Intellectual Disabilities (mMET-IDs)

- Multiple Errands Test - Contextualized Version (MET-CV)
- Big Store MET

Each article summary contains excerpts from the abstract and an online link.

MET

Rotenberg, S., et al. (2020). **Measurement Properties of the Multiple Errands Test: A Systematic Review.** *Archives of physical medicine and rehabilitation, 101*(9), 1628–1642. Click for full-text.

This review suggests the MET should be used cautiously. Reasons for the limited psychometric support are discussed, the value of generic forms of the MET that do not require site specific adaptations is noted, and areas for further psychometric work are highlighted.

Cuberos-Urbano, G., et al. (2013). **Ecological validity of the Multiple Errands Test using predictive models of dysexecutive problems in everyday life.** *Journal of clinical and experimental neuropsychology, 35*(3), 329–336. Request full-text.

The MET showed an adequate inter-rater reliability and ecological validity. The main performance indices from the MET were able to significantly predict severity of everyday life executive problems, with different indices predicting particular manifestations of different components of executive functions.

Poulin, V., et al. (2013). **Stroke-specific executive function assessment: a literature review of performance-based tools.** *Australian occupational therapy journal, 60*(1), 3–19. Click for full-text.

The assessments that demonstrated the strongest evidence of reliability and validity were the Executive Function Performance Test, the Multiple Errands Test and the Assessment of Motor and Process Skills.

MET-SV

Knight, C., et al. (2002). **Development of a simplified version of the multiple errands test for use in hospital settings.** *Neuropsychological Rehabilitation, 12*(3), 231–255. Request full-text.

People with acquired brain injury were clearly discriminated from healthy controls through the number of errors made. Furthermore, one category of error proved highly predictive of difficulties attributable to executive dysfunction observed in the context of everyday living. While one other test correlated almost as well with these difficulties, it was argued that MET methodology is more advantageous to clinicians regarding assessment and rehabilitation.

Alderman, N., et al. (2003). **Ecological validity of a simplified version of the multiple errands shopping test.** *Journal of the International Neuropsychological Society, 9*(1), 31–44. Click for full-text.

The results demonstrate the clinical utility of the test, and suggest that there are two common and independent sources of failure on multitasking tests in a general neurological population: memory dysfunction, and initiation problems.

MET-R

Morrison, M. T., et al. (2013). **Multiple Errands Test-Revised (MET-R): a performance-based measure of executive function in people with mild cerebrovascular accident.** *The American journal of occupational therapy, 67*(4), 460–468. Click for full-text.

The MET-R is a valid and reliable measure of executive functions appropriate for the evaluation of clients with mild executive function deficits who need occupational therapy to fully participate in community living.

MET-G

Basagni, B., et al. (2024). **Development of a generic version of the multiple errands test for severe acquired brain injuries.** *Applied neuropsychology. Adult, 31*(1), 56–63. Request full-text.

The new, generic version of MET was able to differentiate adults with sABI from controls and proved to be a good tool for evaluating executive functions in these patients in daily-life contexts. Indications on how to adapt the test to different contexts and different scoring modalities are provided.

V-MET

La Paglia, F., et al. (2014). **Cognitive Assessment of OCD Patients: NeuroVR vs Neuropsychological Test.** *Studies in health technology and informatics*, *199*, 40–44. Request full-text.

Controls have higher level of efficiency and better performance. In addition, a significant correlation was found between the V-MET and the neuropsychological battery which confirms and supports the ecological validity of neurocognitive assessment through NeuroVirtual Reality.

Raspelli, S., et al. (2011). **Validation of a Neuro Virtual Reality-based version of the Multiple Errands Test for the assessment of executive functions.** *Studies in health technology and informatics, 167*, 92–97. Click for full-text.

Results support the ecological validity of the VMET as an assessment tool of executive functions. Moreover, it was able to differentiate between two age groups of healthy participants and between healthy and post-stroke participants, thus demonstrating that it is sensitive to brain injury and aging.

Rand, D., et al. (2009). **Validation of the Virtual MET as an assessment tool for executive functions.** *Neuropsychological rehabilitation, 19*(4), 583–602. Request full-text.

The VMET was able to differentiate between two age groups of healthy participants and between healthy and post-stroke participants thus demonstrating that it is sensitive to brain injury and ageing and supports construct validity between known groups.

BMET

Clark, A. J., et al. (2017). **Reliability and construct validity of a revised Baycrest Multiple Errands Test.** *Neuropsychological rehabilitation, 27*(5), 667–684. Request full-text.

These results indicate that the two versions of the BMET-R are able to dissociate the performance of participants with ABI from that of healthy participants. However, despite overlaps in performance

and correlations between the two versions of the BMET-R, they did not identically assess executive deficits. This suggests that caution should be used when constructing and validating alternate versions of performance-based assessments.

OXMET

Webb, S. S., & Demeyere, N. (2024). **Comparing the Oxford Digital Multiple Errands Test (OxMET) to a real-life version: Convergence, feasibility, and acceptability.** *Neuropsychological rehabilitation*, 1–26. Advance online publication. Request full-text.

Feedback indicated that the OxMET was easy and fun and more acceptable than the MET-Home. The MET-Home was more stressful and interesting. The MET tasks demonstrated good convergent validity, with the OxMET digital administration providing a more feasible, inclusive, and acceptable assessment, especially to people with mobility restrictions and more severe stroke.

Webb, S. S., & Demeyere, N. (2023). **Predictive validity of the Oxford digital multiple errands test (OxMET) for functional outcomes after stroke**. *Neuropsychological rehabilitation*, 1–17. Advance online publication. Click for full-text.

The subacute OxMET associated with measures of functionality and disability in a rehabilitation context, and in activities of daily living. The OxMET is an assessment of executive function with good predictive validity on clinically relevant functional outcome measures that may be more predictive than other cognitive tests.

Webb, S. S., et al. (2022). **The Oxford digital multiple errands test (OxMET): Validation of a simplified computer tablet based multiple errands test.** *Neuropsychological rehabilitation, 32*(6), 1007–1032. Request full-text.

The Oxford Digital Multiple Errands Test is a brief, easy to administer tool, designed to quickly screen for potential consequences of executive impairments in a virtual environment shopping task on a computer tablet. Initial normative data and validation within a chronic stroke cohort is presented.

MET-HOME

Lai, F. H., et al. (2020). **Home-based evaluation of executive function (Home-MET) for older adults with mild cognitive impairment.** *Archives of gerontology and geriatrics, 87*, 104012. Click for full-text.

Results indicated the Home-MET, can provide an objective measure of executive function for subjects with mild cognitive impairment in participants' own home environment.

Burns, S. P., et al. (2019). **Development, Reliability, and Validity of the Multiple Errands Test Home Version (MET-Home) in Adults With Stroke.** *The American journal of occupational therapy*, 73(3). 7303205030p1–7303205030p10. Request full-text.

This preliminary study suggests that the MET-Home differentiates between adults with stroke and matched control participants. The MET-Home provides evidence of initial reliability and validity among adults with stroke.

YMET

Hanberg, V.L, et al. (2019). **Face validity of the youth Multiple Errands Test (yMET) in the community: A focus group and pilot study**. *British Journal of Occupational Therapy, 82*(4), 248-258. Request full-text.

The focus group and pilot study found the youth multiple errands test was acceptable and cognitively challenging for youth, with older youth performing better than younger youth. Overall youth multiple errands test performance suggests similarities to healthy adults in previous studies.

MMET-IDS

Steverson, T., et al. (2017). **Development and Validation of a Modified Multiple Errands Test for Adults with Intellectual Disabilities.** *Journal of applied research in intellectual disabilities, 30*(2), 255–268. Click for full-text.

The mMET-IDs can be successfully used to assess some aspects of the Supervisory Attentional System in people with intellectual disabilities. Further development is needed, however, to improve the ecological validity of the mMET-IDs.

MET-CV

Valls-Serrano, Cet al. (2018). **Development of a Contextualized Version of the Multiple Errands Test for People with Substance Dependence**. *Journal of the International Neuropsychological Society*, 24(4), 347–359. Request full-text.

The MET-CV has adequate testing context reliability and moderate convergent validity relative to traditional planning measures. People with substance dependence (PWSD) showed significant deficits in executive function tests compared to healthy controls, most notably on the MET-CV rather than on traditional neuropsychological tests.

BIG STORE MET

Antoniak, K., et al. (2019). **Developing and Validating a Big-Store Multiple Errands Test.** *Frontiers in psychology, 10*, 2575. Click for full-text.

We found the Big-Store MET to be feasible to deliver (completed within 30 min, scores show variability, acceptable to participants in community environment) and inter-rater reliability to be very high (ICCs = 0.92-0.99) with the exception of frequency of strategy use. This study introduces the Big-Store MET to the literature, establishes its preliminary validity and reliability thus laying the foundation for a standardized, community-based version of the MET.

APPENDIX

SEARCH METHODOLOGY

A systematic search was conducted for literature. The results were screened by librarians using Covidence.

SEARCH LIMITS

- English-language

DATABASES SEARCHED

- Medline – index of peer reviewed articles across health sciences and medicine.
- Embase – index of biomed and pharmacological peer reviewed journal articles.
- Emcare – index of nursing, allied health, critical-care medicine and more.
- Cochrane Library – collection of databases containing high-quality independent evidence.
- Grey literature – Google, Google Scholar, Trip database, Biomed Central Proceedings.

PRISMA CHART