

# CROSS-CULTURAL APPLICABILITY OF WESTERN-NORMED PERFORMANCE VALIDITY TESTS IN A SINGAPOREAN DEMENTIA POPULATION

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## Introduction

Performance Validity Tests (PVTs) are commonly used in psychological assessments to evaluate whether cognitive test performance reflects genuine ability or poor effort. Accurate effort classification is essential because it influences diagnostic conclusions, treatment planning, disability determinations, and legal outcomes (Heilbrunner et al., 2009).

Most PVTs were developed and normed using Western populations (Green, 2008; Tombaugh, 1996). However, cognitive ageing, educational experiences, and contextual differences may influence performance patterns. Applying Western-derived cut-offs without local validation may increase the risk of misclassifying genuine cognitive impairment as poor effort, i.e. non-credible response.

As dementia prevalence rises across Asia, evaluating the applicability of commonly used Western-normed PVTs in Asian populations has become increasingly important.

## Objective

To evaluate whether commonly used Western-normed PVTs produce valid effort classifications in a Singaporean dementia population and identify measures that minimise false-positive classifications.

## Methodology

### Participants

|                   | Dementia (N = 30) |         |         | Non-Dementia (N = 30) |         |        |
|-------------------|-------------------|---------|---------|-----------------------|---------|--------|
|                   | M                 | SD      |         | M                     | SD      |        |
| Age (Years)       | 74.20             | 6.64    |         | 73.70                 | 6.12    |        |
| Education (Years) | 5.50              | 4.08    |         | 4.90                  | 3.40    |        |
| IQ                | 62.63             | 5.61    |         | 77.50                 | 7.51    |        |
| Female (%)        | 67                |         |         | 67                    |         |        |
| Ethnicity (%)     | C: 76.7           | M: 10.0 | I: 13.3 | C: 93.3               | M: 6.67 | I: 0.0 |

Participants were matched on age, education, and gender. Ethnicity was not matched as it has shown to not affect PVT performance. Exclusion criteria include comorbid active psychosis, traumatic brain injury (TBI) and/or intellectual disability (ID).

### Measures

- Test of Memory Malingering (TOMM; Tombaugh, 1996)
- Dot Counting Test (DCT; Rey, 1941)
- Victoria Symptom Validity Test (VSVT; Slick et al., 1997)
- Rey 15-Item Memory Test-II (Rey-II; Griffin et al., 1997)
- Non-Verbal Medical Symptom Validity Test (NV-MSVT; Green, 2008)

IQ was measured using the Comprehensive Test of Non-Verbal Intelligence, Second Edition (CTONI-2; Hammill et al., 2009) as a covariate to account for differences in baseline cognitive ability.

### Analysis

- Known-groups comparison
- Analysis of covariance (ANCOVA) controlling for IQ across all PVTs
- Classification accuracy using published manual cut-offs

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## Results

### Classification Accuracy and False-Positive Vulnerability

| PVT                | Dementia (%) | Non-Dementia (%) | Interpretation                                       |
|--------------------|--------------|------------------|------------------------------------------------------|
| TOMM Trial 2       | 26.7         | 100.0            | High false-positive risk in dementia group           |
| DCT                | 63.3         | 70.0             | Less sensitive to dementia, but lower discrimination |
| VSVT               | 96.7         | 100.0            | Strongest cross-group performance                    |
| Rey-II Qualitative | 96.7         | 60.0             | Strong performance in dementia group                 |
| NV-MSVT            | 93.3         | 60.0             |                                                      |

### Differential Vulnerability of PVTs to Dementia-Related Cognitive Impairment

Remained significantly associated with dementia status

- TOMM
- VSVT
- NV-MSVT
- Rey-II Quantitative

No longer significantly associated with dementia status (relatively less sensitive)

- DCT
- Rey-II Qualitative

### Reducing False-Positive Classifications Through Combined PVT Use

No participant in the dementia group failed both tests in the following combinations, indicating 100% specificity and zero false-positive effort classifications.

- VSVT + NV-MSVT
- VSVT + Rey-II Qualitative
- Rey-II Qualitative + NV-MSVT

## Sociocultural Implications

PVT cut-offs are derived from Western normative samples. Applying these cut-offs to non-Western populations without local validation may inadvertently increase the likelihood of false-positive effort classifications. The findings suggest that some measures may be more robust across populations than others and highlight the importance of validating tests within local contexts.

## Trauma-Informed Care Implications

Trauma-informed assessment emphasises reducing harm, recognising vulnerability, and avoiding unnecessary pathologisation. For individuals with dementia, inaccurate effort classifications may contribute to stigma and mistrust, reduced access to services, misguided treatment planning, and significant forensic consequences. Practices should therefore balance the detection of non-credible responding with sensitivity to genuine impairment.

## Limitations and Conclusion

This study is limited by a small sample size, known-groups design, and the lack of dementia subtype analyses. In conclusion, standard Western-derived TOMM cut-offs may substantially overclassify invalid performance in dementia populations. Contrastingly, the VSVT, Rey-II Qualitative, and NV-MSVT demonstrated greater robustness. Local validation and multi-method assessment approaches may reduce false-positive classifications and support more trauma-informed clinical practice.