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Clinical tests used by occupational therapists in the area of driving: predictive values.

Claude Vincent[1], Isabelle Gélinas[2], Sylvie Robitaille[3], Huguette Martineau[3], Denis Côté[1]
[1]Laval University, Quebec city, Canada, [2]McGill University, Montreal, Canada, [3]Quebec Rehabilitation Institute, Quebec city, Canada

Background: Driving rehabilitation is an important area of practice in occupational therapy (OT). OTs are often asked to provide recommendations based on their assessment of the clients. Several clinical tests, which have demonstrated some value in predicting on-road driving performance for clients with specific diagnosis and age, can be used. However, very little is known about the ability of these tests to accurately predict on-road driving outcome for a wide variety of clientele with different diagnoses and age.

Objective of the study: To determine the ability of recognized tests used in driving evaluation programs by OTs to accurately predict on-road driving performance for clients across a variety of diagnoses and age.

Methods : A retrospective study using a historical cohort was conducted. Data were extracted from the clinical data base of a Driving Assessment and Rehabilitation Program between 2000 to 2005. The total sample included 670 patients with various physical disabilities (stroke, traumatic brain injury, multiple sclerosis, amputees and others). The main outcome measure was the on-road driving test. The clinical tests employed were: Automatic Brake React Time (ABRT), Motor-Free Visual Perception Test (MVPT), Trail Making Tests (TMT), Bells Test and Useful field of view (UFOV). The predictive validity of the clinical tests was analyzed with logistic regression while model performance was evaluated with the c index.

Results: Age and all clinical tests were related to on-road driving performance. The TMT-B (c=0.83), the TMT-A (c=0.82), the MVPT (time) (c=0.81) and the ABRT (c=0.77) had the best individual discriminative efficiency. The final model was composed of the TMT-B and the ABRT (c=0.86).

Conclusions/ Evidence base of occupational therapy: Our results confirm that the TMT B and the MVPT are still the best predictors (> 80% success) of on-road performance, especially for amputee and multiple sclerosis populations. The discriminative effect of these tests was however weaker for Stroke and traumatic brain injured populations. Surprisingly, the ABRT and UFOV added very little to the model when the TMT B was present. Therefore, OTs working in primary care services could use the clinical decision rule based solely on the TMT B.