consistent with prior research indicating that visuospatial processing is often abnormal in patients with PD. Furthermore, findings indicate that poorer performance on the Identi-Fi in the PD group is associated with poorer cognitive functioning in other domains (i.e., visuospatial learning and memory, processing speed, cognitive flexibility, and semantic fluency), as well as lower premorbid intellectual functioning. While these findings suggest that the Identi-Fi is useful in identifying visuospatial dysfunction in PD, findings should be interpreted with caution given the small sample sizes and uneven gender distribution

Categories:
Assessment/Psychometrics/Methods (Adult)
Keyword 1: Parkinson's disease
Keyword 2: visuospatial functions
Keyword 3: assessment
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6 Back-To-Drive Project. Assessment of Fitness-To-Drive in Older and Cognitively Impaired Adult Drivers: Adaptation of the on-Road Driving Observation Schedule to Simulation-Based Environments

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Objective: Cognitive, motor and sensory deficits associated with aging, and with some neurological conditions such as acquired brain injury, may lead to severe driving performance impairment. While rehabilitation and driver assistance technologies may improve driving performance, the assessment of the actual fitness-to-drive of these people is challenging. Office-based neuropsychological/physical tests are considered insufficient to understand one's ability to drive. The gold standard is the on-road assessment with dual control cars, superior in ecological validity, but expensive, stressful, and potentially unsafe. Valid, more cost-effective solutions for a safer, more accurate, standardized assessment of fitness-to-drive are currently needed. Modern and sensorized driving simulators offer key advantages, such as the possibility of exposing drivers to several relevant driving scenarios, including hazard situations, and of assessing their driving performance without being physically at risk. However, the extraction and direct interpretation of existing simulator-produced data may require specialized data processing skills or simulation expertise. To overcome this, we have developed an easy-to-use, pencil-and-paper observational instrument. The Sim-DOS is an adaptation of the widely used instrument to assess "natural driving", the Driving Observation Schedule (DOS; Vlahodimitrakou et al., 2013).
Participants and Methods: Via expert consensus, DOS targeted behaviors were adapted to a simulated-based environment (signaling, observation of environment, speed regulation, slow or unsafe reaction, distance interpretation, vehicle/lane positioning), and the Sim-DOS scores calculation (based on errors while doing such behaviors) was adapted from DOS to include hazard situations (HS, 0-100) and free driving (FD, 0-∞) scores. The instrument was then piloted with a sample of 35 older adults, along with the collection of simulator-produced data on number of harsh events and driving speed. Participants drove two consecutive 20-minutes long scenarios, with low and high traffic density (LTD, HTD). In each scenario, there were periods with and without potentially hazard situations.
Results: Assessments were performed by two independent trained observers, producing substantial inter-rater reliability (intra-class correlation coefficients above 0.94). Participants (70.7±4.1 years old, 60% male, 46.1±6.7 years of driving experience) were mostly regular drivers (74%). However, psychomotor skills of the majority were compromised, with only one participant being above the 80th percentile in the reaction times test of the national mandatory driving assessment. When exposed to hazard situations, most of the participants (94.1%) did not perform well, independently of traffic density, with average Sim-DOS-HS scores of 87.1±9.7 (out of 100, t-values>7.3, p-values<.05).

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Compared to LTD scenarios, in HTD scenarios participants drove less smoothly (HTD:0.97±1.24 vs. LTD:0.33±0.58 of harsh events, Z=3.1, p<.05). However, they also drove slower (HTD:82.41±27.43 vs. LTD:103.55±14.61 km/h, t=5.2, p<.05), improving their ability to manage hazard situations, and therefore producing higher than expected Sim-DOS scores (HTD:87.05±10.28). During free driving, participants performed worse under LTD conditions (Sim-DOS-FD scores: HTD:11.68±6.20 vs. LTD:14.40±9.58, t=2.15, p<.05) as they drove at higher speed (HTD:85.01±24.28 vs. LTD:104.70±11.94 km/h, t=5.8, p<.05), although they did it more smoothly (HTD:1.94±3.74 vs. LTD:0.45±0.74 harsh events, Z=2.65, p<.05).
Conclusions: Our study provides a validated driving assessment tool for use in driving simulators that will allow a safer, more ecologic, holistic and informative evaluation of the fitness-to-drive of older adults and neurological patients.

Categories:
Assessment/Psychometrics/Methods (Adult)
Keyword 1: driving
Keyword 2: aging (normal)
Keyword 3: brain injury
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7 The MOCA Versus Neuropsychological Testing in Assessing Presence of Memory Impairment and MCI

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Objective: The Montreal Cognitive Assessment (MOCA) is a brief cognitive screener, widely used by providers to detect mild cognitive impairment (MCI). It encompasses 30 questions, assessing executive functioning, visuospatial skills, language, memory, attention, and orientation. Although the MOCA has been shown to have high sensitivity (90%) and specificity (87%) for detecting MCI, existing studies have primarily included participants who were *already* diagnosed with *amnestic* MCI via neuropsychological testing. Since several factors beyond the presence of MCI can contribute to low performance on the MOCA (e.g., premorbid IQ, fatigue, mood symptoms), over-reliance on the MOCA runs the risk of falsely identifying individuals as having cognitive impairment. The MOCA's memory subtest raises particular concern as there are several language-based tasks between the learning and delay trials, introducing the potential for interference effects. Thus, the MOCA's ability to accurately identify those at risk for MCI in the community remains unclear. The objective of the present study was to evaluate: (1) the MOCA's association with neuropsychological memory measures; and (2) its ability to distinguish between neurocognitive groups (intact vs. MCI vs. dementia).
Participants and Methods: This study involved a retrospective analysis of fifty-one patients (M age=72.58 [7.90]; M education= 16.37 [16.37]) who underwent neuropsychological evaluation. Standardized scores for total list-learning (HVLT; CVLT-bf) were used to capture memory *encoding*; retention % scores were used to capture memory *storage*. MOCA scores included Total MOCA, MOCA-Orientation, and the MOCA Memory Index (MOCA-MEM). MOCA-MEM was calculated based on Julayanont et al., 2014— (Free-Delayed Recall*3) + (Category-Cued Recall*2) + Multiple Choice–Cued Recall. Bivariate correlations were conducted for the MOCA and neuropsychological test scores. Participants were divided into three diagnostic groups, classified by the neuropsychologist: (1) Cognitive Intact (CI; n=13); (2) MCI (n=26); and (3) Major Neurocognitive Disorder/Dementia (MNCD; n=11). Analysis of covariance was used to analyze differences between the cognitive groups on Total MOCA, MOCA-Orientation, and MOCA-MEM.
Results: Total MOCA correlated with word-list learning (r=.434, p=.004) and retention% (r=.306, p=.049). MOCA-MEM was correlated with word-list learning (r=.367, p=.042); it did not significantly correlate with retention%. MOCA-Orientation had the strongest correlation with retention% (r=.406, p=.009). Means of Total MOCA significantly differed between CI (25.31[2.56]), MCI (22.04[4.14]), and MNCD (15.44[4.13]). MOCA-MEM *only* differentiated CI (10[3.66]) and MNCD (5.71[2.14]); it did not

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