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Are there differences between acute and home-dowelling stroke clients on their executive functions skills?

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Background: Executive functions are defined as higher-order functions necessary for performing complex or non-routine tasks. Post-stroke people are often encumbered by impaired executive functions which hinder their capacity to return to everyday life functioning. During the rehabilitation process, clinicians strive to engage stroke clients in complex functional activities which are neither time-consuming nor expensive, yet are geared specifically to train and augment executive functions. Employing functional virtual environments is becoming an increasingly important training solution. The current study objectives were to describe the respective executive performance profiles for two samples of post-stroke clients and to investigate their distinctive performance of acute and home-dwelling stroke clients using a virtual supermarket platform for assessing executive functions.

Method: Two groups were included in this study: 35 acute post-stroke participants (29 men and 6 women, mean age±SD 65.54±11.29 years). The home dowelling group included 24 participants (22 men and 2 women, mean age±SD 58.9±5.5 years).

Instrument: Virtual Action Planning-Supermarket (VAP-S) is a virtual supermarket developed as a clinically-sound and ecologically valid researchtool for assessing executive functions. The VAP-S task performance for each participant is gauged using eight outcome measures recorded by computer.

Results: Significant differences were found between the average age and year of education of the two groups. A MANCOVA test revealed significant between group performance differences, $F(6, 45)=6.98$, $p=0.001$, ES-$\eta 2=0.29$ with the home-dwelling stroke clients performing better than the acute group. No effects for age and years of education were found.

Conclusion: Executive functions such as efficiency and time performance do improve over time. Is this improvement attributable to the rehabilitation process? Or alternately does brain recovery expedite better executive functioning? Investigating the neural correlates of executive functions during performance of everyday activities is proposed as a further key step in research of people following stroke.

Biography

Naomi Josman has completed her PhD from New York University and Postdoctoral studies from Hebrew University. She is a Professor of Occupational Therapy in the University of Haifa, Israel. She also serves as Director of the PhD program. She is an internationally recognized leader, scholar and educator in the area of cognitive rehabilitation and she has published more than 80 papers. Her research investigates cognition, metacognition, executive functions and their influence on everyday life. Her work is based on an ecologically-valid assessment of cognitive impairments to performance-based assessments utilizing innovative methods and tools inter alia virtual reality for evaluation and intervention.

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