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Quick Review of Model System Research

Longitudinal Description of the GOS-E for Individuals in the Traumatic Brain Injury Model Systems National Database: A National Institute on Disability and Rehabilitation Research Traumatic Brain Injury Model Systems Study[1]

What is the study about?

Rehabilitation researchers and clinicians who treat individuals with traumatic brain injury (TBI) are interested in evaluating the progression of recovery over time. The objective of this study was to use individual growth curve modeling to examine individual level patterns of change in functional outcome for Traumatic Brain Injury Model Systems National Database (TBIMS NDB) participants.

Who participated in the study?

Participants in this study were individuals enrolled in the TBIMS NDB. The participants had either moderate or severe TBI, were 16 years or older, and received treatment and rehabilitation from a TBIMS affiliated center. A total of 3,870 participants were included in the study.

How was the study conducted?

To assess the outcome of each participant, the Glasgow Outcome Scale-Extended (GOS-E) was used to measure overall disability. The GOS-E is an 8-point scale, which includes Dead, Vegetative State, Lower Severe Disability, Upper Severe Disability, Lower Moderate Disability, Upper Moderate Disability, Lower Good Recovery, and Upper Good Recovery. However, since "Dead" is not a viable longitudinal outcome, this level of the measure was removed from the analysis. Higher GOS-E scores indicate less severe functional outcome. The GOS-E score was collected between July of 2000 and September 2012. Random effects modeling i.e. individual growth curve analysis was utilized so that different trajectories which represent change outcome can be generated based on different sets of covariate values such as Functional Independence Measure (FIM) score, race, sex, and rehabilitation length of stay (RLOS).

What did the study find?

The study found that a nearly countless number of individual level trajectories can be explored, essentially providing an exhaustive description of the TBIMS NDB with regard to change in functional outcome over time as measured by the GOS-E. To investigate these trajectories, an interactive tool was created and can be found at http://www.tbindsc.org/researchers.aspx. Using this tool, a researcher or clinician can project long-term outcomes for a "new" patient who has characteristics similar to those seen in participants in the TBIMS NDB. Understanding the factors that influence individual-level patient outcomes is important for all stakeholders.

The contents of this quick review were developed under a grant from the Department of Education, NIDRR grant number H133A110004. However, those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government.

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[1] Pretz, C.R., Dams-O'Connor K., A longitudinal description of the GOS-E for individuals in the Traumatic Brain Injury Model Systems National Database: National Institute on Disability and Rehabilitation Research Traumatic Brain Injury Model Systems Study. *Archives of Physical Medicine and Rehabilitation, 94*(12), 2486-2493.