

Research In Focus: A Weekly Digest of New Research from the NIDILRR Community

Pre-Injury Factors May Matter More Than Injury Severity When Predicting Outcomes after a Traumatic Brain Injury

A study funded by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR).

A traumatic brain injury (TBI) is lasting brain damage from an external force, such as after a fall or a car accident. TBI can range from mild to severe, depending on a variety of factors such as how long a person loses consciousness or other indicators like memory problems. People with TBI may have long-lasting problems with thinking and memory, mobility, or personal care after their TBI, sometimes for years after their injury. These problems are worse for some people than for others. Previous studies have shown that psychiatric conditions like depression may have an impact on long-term recovery after TBI. Other studies have found that TBI survivors with a history of pre-injury arrests may have difficulty adjusting to life after TBI and may turn to substance use or other negative coping mechanisms. In a recent NIDILRR-funded study, researchers looked at factors that might relate to long-term outcomes after TBI. They wanted to find out whether people with a history of psychiatric disabilities or incarceration before their TBI experienced more long-term problems than people without such histories. They also wanted to find out whether the severity of the TBI, age at injury, or pre-injury education levels were linked with the severity of long-term problems.

Researchers at the [Southeastern Michigan Traumatic Brain Injury System Center \(SEMTBIS\)](#) looked at data from 149 people with TBI who were enrolled in the TBI Model Systems National Database through the SEMTBIS. The participants were 16-75 years old, and all had a TBI for at least 5 years.

The researchers looked at information from the participants' hospital records and information collected when they began treatment through SEMTBIS, including whether or not they had received treatment for a psychiatric disability before their injury, whether or not they had been incarcerated (gone to jail or prison) at some point before their injury, the severity of the injury (based on the length and intensity of altered consciousness they experienced immediately after the injury), and their age and education level at the time of the injury.

The researchers also looked at data from follow-up assessments conducted with these participants at 5, 10, and 15 years after their TBI. During the assessments, the participants were asked about problems they experienced with cognition (thinking, memory, and decision-making); problems with mobility and getting around; how much help they needed with personal care tasks; how much they were able to participate in work, school, and related activities; and how much they were able to participate in social relationships.

The researchers found that:

- The participants with a history of psychiatric disabilities or incarceration before their injury reported more problems with cognition, and needed more help with personal care tasks, than the participants without a history of psychiatric disabilities or incarceration. This pattern held up even after accounting for the severity of the injury and age at injury. The participants with psychiatric disabilities were also less involved in work, school, and related activities after their injury than those without psychiatric disabilities.
- The participants with more severe injuries reported more problems with mobility than those with less severe injuries.
- The participants who were older when injured were less involved in work, school, and related activities after injury than the participants who were younger when injured, regardless of the severity of injury.
- The participants with more formal education reported more problems with cognition than the participants with less formal education.
- None of the preinjury factors were predictors of participation in social relationships for the participants in this study.

The authors noted that some pre-injury factors, especially a history of psychiatric disabilities or incarceration, may be a strong predictor of some long-term outcomes after TBI regardless of the severity of the injury or the person's age at the time of the TBI. People with pre-existing psychiatric disabilities, or a history of arrests and incarceration prior to their injury, may have more difficulty adjusting to the effects of a TBI. Other factors including the severity of injury, age at injury, and level of education may also impact other facets of recovery. Rehabilitation providers may wish to ask patients about their pre-injury history in order to identify those who may benefit from increased support during TBI rehabilitation and in their long-term recovery. The authors also recommend educating TBI rehabilitation teams about the possible impact of pre-injury factors such as psychiatric disability or previous incarceration on outcomes after TBI.

[To Learn More](#)

The [Model Systems Knowledge Translation Center \(MSKTC\)](#) offers many resources to help understand TBI and its impact on memory, emotion, behavior, and function. Among their resources is a [Policy Fact Sheet on Moderate to Severe TBI](#), which outlines the estimated burden of moderate and severe TBI on public health, and highlights key policy strategies to address the long-term consequences of TBI.

Brainline.org, a service of WETA, has many resources for TBI survivors, families and caregivers, and rehabilitation professionals, including a directory of local and national organizations, blogs and personal stories from survivors and caregivers, and expert question-and-answer articles. <http://www.brainline.org>

To Learn More About this Study

Seagly, K.S., O'Neil, R.L., & Hanks, R.A. (2018) [Pre-injury psychosocial and demographic predictors of long-term functional outcomes post-TBI](#). *Brain Injury*, 32(1), 78-83. This article is available from the NARIC Collection under Accession Number J78126.

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