

Impaired Self-Awareness After Brain Injury: the Challenge of Not Knowing

MossRehab's four-year Collaborative Study of Impaired Self-Awareness after Traumatic Brain Injury is the most comprehensive study of its kind ever undertaken.

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Put yourself in the place of someone who has had a brain injury. You may experience a sudden, profound problem with memory, language, reasoning or judgment. Perhaps you are unable to control your emotions or your behavior. Worst of all, you may be completely unaware of these problems, even though they are obvious to other people around you. This is the challenge of impaired self-awareness, a common consequence of traumatic brain injury.



Being unable to recognize problems with one's own cognition and behavior seriously impacts many aspects of life. Impaired self-awareness affects basic functions such as physical safety, as well as the more subtle skills needed to get along with others. A patient who doesn't know that she has impaired balance might trip and fall while rushing down the stairs. Another may angrily accuse family members of stealing, unaware that his memory loss has caused him to misplace his own belongings.

What causes impaired self-awareness after brain injury, and how does the disorder affect the survivor's ultimate recovery and quality of life? These are the questions that researchers at Moss Rehabilitation Research Institute hope to answer, with funding from the National Institute on Disability and Rehabilitation Research. MossRehab is one of two centers (along with Mississippi Methodist Rehabilitation Center in Jackson, MS) engaged in the four-year Collaborative Study of Impaired Self-Awareness after Traumatic Brain Injury—the largest and most comprehensive study of its kind ever undertaken.

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A Road Block to Recovery

All brain injury survivors and family members face challenges of daily living when learning to cope with disability. For those who have impaired self-awareness, however, these challenges are exacerbated.

“Impaired self-awareness affects the rehabilitation process in a fundamental way,” says Tessa Hart, PhD, Principal Investigator of the study and Institute Scientist at Moss Rehabilitation Research Institute. “If a person isn’t aware of a deficit, he or she is not going to be motivated or even willing to work on improving it. The condition causes distress for the family, too. They may work hard to coordinate treatment resources, only to have the injured person argue with them and refuse the help.”

In addition, says Dr. Hart, impaired self-awareness often causes negative social outcomes for the person. “Past research has shown that the less aware you are of your deficits after brain injury, the less likely you will return to work, even years later. This is partly because people with impaired self-awareness are more likely to try for jobs that they really can’t handle. Our study will extend this research to examine outcomes in other areas, such as social and emotional functioning and overall satisfaction with life.”

Qualitative Research: a First Step in New Treatment Development

The grant provides for a number of subprojects, including a qualitative study of self-awareness from the point of view of the persons most affected: the survivor and their family members. Researchers are conducting interviews with the injured person to determine how they feel they have changed or if they believe they have remained the same since the injury. Family members have the opportunity to agree or disagree with the patient’s opinion.

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In this way, researchers hope to learn what specific losses of ability are most difficult for the injured person to grasp. Researchers hope that the new knowledge they uncover will stimulate the development of new treatments and service innovations that will more effectively address the needs of persons with impaired self-awareness due to brain injury.

Dr. Hart and her colleagues are also studying these factors related to impaired self-awareness:

- **The brain location of impaired self-awareness:** Scientists speculate that impaired self-awareness primarily affects those with damage to the brain’s frontal lobes. Researchers will attempt to document this by studying participants’ brain CAT scans. This information will help researchers predict who is most at risk for impaired self-awareness following brain injury.
- **The relationship between impaired self-awareness and specific functions** such as memory and the control mechanisms in the brain known as “executive functions.” Executive functions include skills involved in planning, prioritizing, impulse control and self-correction.
- **The recovery of self-awareness over time:** Researchers know that for most people with brain injury, self-awareness tends to improve with time. To document this, and to learn more about who improves and who doesn’t, they will assess research participants during their rehabilitation hospital stay and again one year after the injury.
- **The impact of impaired self-awareness on patient and family quality of life.** Researchers hope to determine whether being more aware of lost abilities helps one to cope with them, adapt to them and become more productive and socially active after injury. Conversely, it is possible that increased awareness of one’s deficits will lead to an increased incidence of debilitating post-injury depression.

After the four-year study has ended, researchers will share their findings with colleagues and the public. Now half completed, the research has already yielded interesting results. “We have found that the worse the deficits are in some areas, the less likely it is that the person will recognize them. These findings make it all the more important to try to understand this disorder and develop new ways of treating it,” says Dr. Hart.