

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

Lifetime Traumatic Brain Injury History May Be Associated with Intermittent or Persistent Pain and Opioid Use

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

Traumatic brain injury (TBI) is lasting brain damage from an external force, such as a fall or car accident. People who have a TBI may experience pain after their injury, and that pain may be intermittent or persistent. Like many people, they may use opioids to manage their pain. A recent national survey indicated that more than one third of adults in the U.S. have taken opioid medication in the last year. Of those adults, nearly two-thirds reported that relief of physical pain was the primary reason for their opioid use. In particular, individuals with a history of TBI may be especially predisposed to opioid use, due to the prevalence of chronic pain in that population. Prior research of veterans has demonstrated associations between a history of TBI and increased risk for pain and increased likelihood of short-term and long-term opioid use. However, there has been very little investigation into the relationship between TBI, pain, and opioid use relative to the general population. In a recent NIDILRR-funded study, researchers evaluated the association between the presence of persistent or intermittent pain, recent opioid use, and the lifetime history of TBI in adults over the age of 50. The researchers wanted to know whether individuals with a history of TBI would have an increased risk for persistent or intermittent pain, and an increased risk for recent prescription opioid use compared to those without TBI.

Researchers at the project [INROADS: Intersecting Research on Opioid Misuse, Addiction, and Disability Services](#) and TBI Model System Centers in Ohio and New York looked at data from the Health and Retirement Study (HRS), an annual nationwide survey of US adults over age 50. Of the nearly 19,000 participants in the HRS survey, 1,022 participants were randomly selected to complete a TBI Module when they were interviewed for the survey in 2014. In this module, the participants answered questions about whether they had ever experienced head or neck injuries, how long ago they were injured, and whether those injuries resulted in feeling dizzy or dazed, loss of consciousness, or hospitalization. They also reported how old they were the first time they had a TBI, how many times they had been injured, and how long since their last TBI. On a separate part of the HRS survey, the participants answered questions about how often they experienced pain and how bad the pain was most of the time. Finally, these participants completed another interview in 2016 where they provided an update of their experiences with pain and reported whether they took opioids or over-the-counter medications for their pain at any time in the previous three months.

The researchers classified participants as having had a TBI if they reported dizziness, memory loss, loss of consciousness, or hospitalization following their injury. The participants who reported moderate to severe pain in either 2014 or 2016 were

classified as having intermittent pain and those who reported moderate to severe pain in both 2014 and 2016 were classified as having persistent pain.

When reviewing the results, the researchers found that

- About 38% of the participants reported experiencing at least one TBI
- Participants with a history of TBI reported more intermittent and persistent pain than those without TBI. In particular, the participants with TBI were nearly two times more likely to have intermittent pain, and nearly five times more likely to have persistent pain compared to those with no history of TBI.
- Participants with a history of TBI reported higher usage of opioid medication compared to those without a history of TBI.
- Among those with a history of TBI, the participants whose first TBI occurred at age 40 or older, who had 2 or more TBIs, or who had a TBI in the last 10 years were at highest risk for opioid use.
- Among those with TBI who took opioids for pain, more than half reported taking it for persistent pain rather than intermittent pain, compared to about one-third of those without TBI.

The authors noted that pain is the most commonly cited reason for starting an opioid prescription in the general population, and people with TBI are more likely to have persistent pain than those without TBI. A significant number of participants in this study reported a history of TBI and pain, and they were more likely to report using opioids for pain. Research has shown that TBI can cause chronic cognitive and behavioral challenges, which can increase the risk of a person developing a substance use disorder. Other research has shown a high number of unintentional poisoning deaths after TBI were linked to narcotics. People with TBI who use opioids for pain management may be at risk for developing an opioid use disorder or unintentional poisoning from overuse of these drugs. Physicians and pain management specialists may want to be aware of their patient's history of TBI, particularly multiple or later-in-life TBI, when developing pain management plans. Future research may be able to provide additional information on the connection between a history of TBI and use or misuse of opioids.

[To Learn More](#)

The Model Systems Knowledge Translation Center (MSKTC) offers a wide array of information resources for people with TBI, caregivers, and practitioners. This includes a three-part series on [chronic pain and TBI, a quick research review on TBI and opioid use](#), and [infocomics on TBI and headaches](#).

The INROADS project has published [several briefs and reports](#) on opioid use among people with disabilities. Resources available from INROADS include a plain-language summary of research on opioid use in people with TBI, factsheets on medication

treatment and peer support, and recommendations for substance use treatment providers working with TBI clients.

[To Learn More About this Study](#)

Kumar, R.G., Ornstein, K.A., Corrigan, J.D., Adams, R.S., and Dams-O'Connor, K. (2020) [Association between lifetime history of traumatic brain injury, prescription opioid use, and persistent pain: A nationally representative study](#). Journal of Neurotrauma, 38, 1-7. This article is available from the NARIC collection under Accession Number J86070.

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