

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

Wheelchair Breakdowns May Be Linked to Health Consequences for People with Spinal Cord Injuries

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

A spinal cord injury (SCI) consists of damage anywhere along the spinal cord from an accident or other trauma, oftentimes causing weakness or paralysis. Many people with SCI use wheelchairs to get around. Along with mobility, wheelchairs offer physical support for a person's trunk and limbs. A properly functioning wheelchair can help prevent pain, pressure injuries (also called pressure sores), and other complications after an SCI. However, if their wheelchairs break down, people with SCI may have difficulty getting around or caring for their wellness needs. Previous research has found that up to half of wheelchair users with SCI experience such breakdowns at least once in a six-month period, with potentially significant consequences such as being stranded away from home, missing important appointments, or being injured. In a recent NIDILRR-funded study, researchers looked at the connections between wheelchair breakdowns and health issues for people with SCI. They wanted to find out if people who had a recent wheelchair breakdown had worse health, worse pain, or more hospitalizations than people who had not had a recent wheelchair breakdown.

Researchers at the University of Pittsburgh Model Center on Spinal Cord Injury reviewed 610 responses to a survey of people with SCI who enrolled in a longitudinal data collection at nine SCI Model Systems centers. The participants were over 16 years old (with an average age of 44 years old), had their SCI for at least a year, and all used a manual or powered wheelchair for at least 40 hours a week.

On the survey, the participants were asked if they had experienced their wheelchair breaking down at least once during the last six months. If they had, they were then asked whether or not the wheelchair breakdown had caused an "immediate consequence" such as being stranded; being injured; or missing a medical appointment, work, or school. The participants were also asked to rate their overall health status on a scale ranging from excellent to poor; indicate how much pain they experienced over the last month on a ten-point scale; and indicate whether or not they had been hospitalized in the last 12 months as well as whether the hospitalization was for a pressure injury or for another reason. In addition, participants were asked whether had access to a working back-up wheelchair.

The researchers found that 58% of the participants had their wheelchair break down at least once in the last 6 months, and 18% of the participants experienced an immediate consequence resulting from their wheelchair breaking down. The most common consequence was being stranded, followed by missing a medical appointment, missing school or work, and being injured. Compared to the participants whose wheelchairs did not break down, the participants who experienced a breakdown with immediate

consequences reported worse overall health, more severe pain, and were more likely to have been hospitalized for pressure injuries. The participants whose wheelchairs broke down without immediate consequences had no more health issues than the participants whose wheelchairs did not break down. About 43% of the respondents reported having a back-up wheelchair. However the researchers found that having a working back-up wheelchair did not reduce the likelihood of negative health following one of these breakdowns.

The authors noted that for many people with SCI, wheelchairs may play an important role not only for mobility, but also for optimizing health and wellness. For the participants in this study, the immediate consequences of a wheelchair breakdown were associated with worse health outcomes, even for those participants who had access to a working back-up wheelchair. Both wheelchair users with SCI and rehabilitation providers may benefit from training on wheelchair maintenance and ways to prevent breakdowns. In addition, policymakers may wish to prioritize resources that allow wheelchair users to access timely repair services.

[To Learn More](#)

The Model Systems Knowledge Translation Center (MSKTC) has published a Maintenance Guide for Users of Manual and Power Wheelchairs, developed with researchers from the University of Pittsburgh Model Center on SCI. The guide discusses the importance of maintaining a wheelchair to avoid breakdowns, which can injure users and limit mobility and social participation. It guides users on when to perform maintenance, parts and functions to inspect, and potential problems to look for in both manual and power wheelchairs. Available in English and Spanish at <https://msktc.org/sci/factsheets/maintenance-guide-users-manual-and-power-wheelchairs>

AbleData, the largest database of assistive technology products and manufacturers, offers a range of factsheets and guides including the Guide to Wheeled Mobility – Manual Wheelchairs, Power Chairs, and Scooters: <https://abledata.acl.gov/publications/guide-wheeled-mobility-manual-wheelchairs-power-chairs-and-mobility-scooters>

[To Learn More About this Study](#)

Hogaboom, N.S., et al (2018) [Wheelchair breakdowns are associated with pain, pressure injuries, rehospitalization, and self-perceived health in full-time wheelchair users with spinal cord injury](#). Archives of Physical Medicine and Rehabilitation, 2018. This article is available from the NARIC collection.

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