People with Inhalation Injuries After Burn May Have Additional Challenges Returning to Work

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Each year, about half a million Americans are treated for burn injuries. A burn injury may result from a fire or contact with chemicals, electricity, or hot liquids. If individuals are exposed to smoke from a fire, they may experience not only injury from the burn itself, but also inhalation injuries from inhaling smoke or a loss of oxygen. These individuals may require emergency treatment and may spend some time on a ventilator while their lungs are healing from the smoke damage. Consequently, burn survivors with inhalation injuries may experience additional health challenges and a longer recovery compared with burn survivors who do not have these injuries. In a recent NIDILRR-funded study, researchers looked at data from burn survivors with and without inhalation injuries. They wanted to find out whether the burn survivors with inhalation injuries required more hospital care than those without inhalation injuries. They also wanted to find out whether the burn survivors with inhalation injuries had lower levels of employment, physical or mental health, or life satisfaction two years after injury than the burn survivors without inhalation injuries.

Researchers at the Boston-Harvard Burn Injury Model System Center looked at data from the Burn Model System Database for 1,871 individuals who received burn injury treatment at six burn centers participating in the Burn Model Systems (BMS) in Colorado, Maryland, Massachusetts, Texas, and Washington between 1993 and 2019. The researchers looked at data at two time points, at discharge and two years after burn injury. At discharge, the researchers looked at the following information: whether or not the individual had been diagnosed with an inhalation injury; their employment status before the burn injury; the cause of the burn injury; and information about their hospital care including how many days they stayed in the hospital, whether or not they were treated in the Intensive Care Unit (ICU), the size of their burn, and how many times they went to the operating room. At 2 years after their burn injury, the researchers looked at whether or not the individual was employed, as well as their overall physical health, mental health, and satisfaction with life.

The researchers found that 208 of the 1,871 individuals had experienced an inhalation injury as part of their burn injury. When the researchers compared the individuals with and without inhalation injuries, they found that:

- 95% of the individuals with inhalation injuries received care in the ICU compared with 51% of the individuals without inhalation injuries. The individuals with inhalation injuries also had longer hospital stays and more trips to the operating room than the individuals without inhalation injuries.
Before their burn injuries, 63% of the individuals with inhalation injuries and 67% of the individuals without inhalation injuries were employed. However, 2 years after injury, only 32% of the individuals with inhalation injuries were employed, compared to 55% of the individuals without inhalation injuries. This difference held up even after accounting for medical factors such as the size of the burn and the length of stay in the hospital.

After accounting for medical factors, there were no differences in physical health, mental health, or life satisfaction between the individuals with and without inhalation injuries.

The authors noted that employment is an important marker of recovery for people with burn injuries, and they may need accommodations or supports to return to work. In this study, individuals with inhalation injuries were less likely to return to work than those without these injuries. According to the authors, the long term impacts of inhalation injuries may include impaired cognitive functioning, anxiety, post-traumatic stress disorder, and other “hidden” disabilities which may create additional challenges to returning to work. Employers may be familiar with and provide accommodations for the physical limitations caused by burn injuries but may not be so for some of these more subtle long-term impacts of inhalation injury. Rehabilitation providers may wish to focus on educating employers and individuals with burn injuries about a wide range of accommodations that could facilitate return to work, supporting the many facets of recovery from burn injury. Future research may also be useful to better identify some of the long-term effects of inhalation injury beyond the impacts of experiencing burn injury more generally.

The authors also noted that, although the individuals in this study had similar levels of physical and mental health and life satisfaction regardless of inhalation injury, these levels were still lower on average than the levels reported by people without disabilities. Burn injuries may have long-term impacts on physical and mental health beyond the initial recovery period. Rehabilitation providers may wish to prioritize community integration to optimize long-term quality of life for burn injury survivors.

To Learn More
The Model Systems Knowledge Translation Center (MSKTC) has a wealth of information for burn injury survivors, families, and professionals including factsheets, videos, and slideshows on return to work after burn injury.

Inhalation Injuries from MedlinePlus, trusted health information from the National Library of Medicine, offers an overview of these injuries, their causes and treatments, and how to prevent these injuries.

To Learn More About this Study
Research In Focus is a publication of the National Rehabilitation Information Center (NARIC), a library and information center focusing on disability and rehabilitation research, with a special focus on the research funded by NIDILRR. NARIC provides information, referral, and document delivery on a wide range of disability and rehabilitation topics. To learn more about this study and the work of the greater NIDILRR grantee community, visit NARIC at www.naric.com or call 800/346-2742 to speak to an information specialist.

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