DOI: 10.4274/jmsr.galenos.2025.2025.10-1

J Mult Scler Res 2025;5(3):57-58

LETTER to the EDITOR

Changing Climate, Warming World, Flaring Symptoms: A Silent Threat for Individuals with Multiple Sclerosis

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Keywords: Climate change, multiple sclerosis, symptom exacerbation

Dear Editor,

Climate change represents one of the most pressing global challenges of the modern era, adversely affecting quality of life through rising ambient temperatures, altered precipitation patterns, and an increasing frequency of extreme weather events linked with glacial melting. These environmental changes not only compromise physical health but also exert profound effects on mental well-being and public health by exacerbating both acute and chronic disease conditions (1).

Multiple sclerosis (MS) is a chronic inflammatory demyelinating disease of the central nervous system that primarily affects young adults (2). Growing evidence suggests that climate-related environmental stressors may amplify neuroinflammatory activity and disrupt immune homeostasis in individuals with MS, thereby contributing to symptom exacerbations (3). Although some inconsistencies exist across studies, the majority of available data indicate that rising temperatures and extreme environmental conditions are associated with worsening MS symptoms and an increased risk of hospitalization (4).

Heat sensitivity, commonly referred to as the Uhthoff phenomenon, is characterized by a transient worsening of neurological function following exposure to elevated temperatures and is frequently observed in individuals with MS (5). Increased ambient temperatures are strongly associated with heightened fatigue, impaired gait performance, and an elevated risk of falls in this population (6). Furthermore, mobility limitations related to climate-induced symptom aggravation may hinder timely access to essential resources during emergencies, further increasing vulnerability among individuals with MS (3).

Recent evidence indicates that exposure to elevated environmental temperatures significantly increases symptom severity in individuals with MS, with each 1 °C rise in temperature associated with a measurable worsening of pre-existing neurological manifestations (7). Short-term heat exposure has also been shown to transiently impair physical performance, elevate core body temperature, and reduce mobility in heat-sensitive patients with MS (8). Furthermore, hot weather has been associated with an increased susceptibility to MS relapses, a risk expected to escalate with the progression of global climate change (9).

An investigation into healthcare utilization patterns revealed that individuals with MS are more likely to seek acute medical care during periods of extreme heat, reflecting a growing strain on healthcare systems under climate-related stress (10). Climate change-related disasters further jeopardize the health and safety of vulnerable populations, including individuals with MS. In disaster contexts, adequate preparedness among MS patients and proactive identification of their specific needs by healthcare professionals are essential to ensure continuity of care and reduce morbidity both during and after such events (11).

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Received: 09.10.2025 **Accepted:** 02.12.2025 **Epub:** 23.12.2025 **Publication Date:** 30.12.2025

Cite this article as: Kaplan N. Changing climate, warming world, flaring symptoms: a silent threat for individuals with multiple sclerosis. J Mult Scler Res. 2025;5(3):57-58

In conclusion, substantial gaps remain in understanding the full extent of climate change effects-a major ongoing global challenge-on individuals with MS and the progression of their symptoms. Targeted strategies must be developed to mitigate these adverse effects. Systematic documentation of symptom exacerbation and climate-related environmental stressors using robust scientific data is crucial, as is timely communication with healthcare authorities and continuous education of healthcare professionals regarding climate-sensitive neurological conditions. The implementation of evidence-based regulatory frameworks will support policy development aimed at improving the quality of life of individuals with MS and provide a solid scientific foundation for future interdisciplinary research. Given this emerging silent threat, coordinated action by healthcare providers and policymakers is urgently required. A global, systematic assessment of the climate-related risks faced by individuals with MS is essential to ensure the delivery of high-quality, holistic care.

Footnotes

Financial Disclosure: The author declared that this study received no financial support.

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