

# In the Heat of Anger: The Impact of Increasing Temperatures on Veteran and Military Mental Health

*Feeling the heat of anger right now, I close my eyes and look into the future.  
Three hundred years from now, where will you, where will I be?*

Thich Nhat Hanh<sup>1</sup>



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In June, an intense heatwave moved across the United States. According to the National Weather Service, about 50 million Americans were warned of excessively hot temperatures. In the Southwest, dozens of cities broke temperature records, and in New Mexico, my home state, terrible wildfires ravaged thousands of acres. Nor will the rest of the country be spared as the dome of heat is expected to move into the Midwest and even the Northeast before it is done.<sup>2</sup> The ongoing COVID-19 pandemic and the heatwaves exacerbate each other.

The US Global Change Research Program studies the adverse effects of high temperatures on human health. High ambient heat is associated with cardiovascular, respiratory, renal, metabolic, vector- and food-borne illnesses, and malnutrition.<sup>3</sup> Veterans, especially those who are older or homeless, are considered heat-vulnerable populations more susceptible to sunstroke, dehydration, and heat exhaustion. Last July, during record-breaking heat in many large cities, US Department of Veterans Affairs (VA) Secretary McDonough emphasized the availability of community and VA resources for veterans experiencing high temperatures, especially those who were homeless.<sup>4</sup>

The Veterans Health Administration (VHA) also reached out to service members who were deployed to the baking deserts of Iraq and Afghanistan, advising them that they may experience service-related heat stroke or exhaustion.<sup>5</sup> Today's military confronts many challenges in training troops in hot temperatures at home and in combat overseas.<sup>6</sup> The 2019 report from the advocacy and research organization, the Union of Concerned Scientists (UCS) reported the need to ensure the preparedness of the fight-

ing force and that increasing temperatures from climate change will make it harder to balance this mission with protecting the health of service members. The study estimated there were 17 heat-related deaths and a 60% jump in heat-related injuries in the previous decade. More worrisome, UCS predicted that if the temperature trend is not abated, by 2050, military bases will experience an additional month where the heat index will feel like it is 100 °F or more.<sup>7</sup>

In comparison, less attention has been focused on the adverse effects of high temperatures on mental health. Most of us recognize that too many hot days in the height of summer may cause fatigue, impatience, restlessness, and difficulty concentrating. A 2018 systematic review reported a strong association between high ambient temperature and suicide.<sup>8</sup> Suicide has been among the highest public health priorities in the VHA and the military.

There is also evidence of the correlation between emergency department (ED) visits for mental health conditions in non-VA hospitals and scorching days and sweltering nights. An analysis of data of > 3 million ED visits involving > 2 million insured patients revealed increased ED visits during periods of extreme heat for stress, substance use, somatoform, anxiety, mood, schizophrenia, schizotypal and delusional disorders, as well as self-harming behaviors. The association is likely even stronger in service members. The largest study ever conducted on the mental health of service members, the Army Study to Assess Risk and Resilience in Servicemembers (ARMY STARRS), found higher rates of mental health disorders than in the civilian population.<sup>9</sup>

What is the clinical science behind this long-established link between heat and mental health disorders? High temperatures disrupt sleep, interfere with memory and attention, and increase irritability and depression especially in persons with extant mental health disorders. Individuals with schizophrenia may have difficulty with temperature regulation, a problem antipsychotic and antidepressant medications may exacerbate. Extreme heat leads to extreme behavior, including domestic violence, chemical coping, and aggression. Individuals diagnosed with dementia may lack the mental wherewithal and economic resources to prepare for and respond to extreme heat, leading to higher morbidity and mortality.<sup>10,11</sup> The so called heat hypothesis holds that extreme high temperatures increase hostile feelings and aggressive thoughts that trigger other directed violence.<sup>12</sup>

For many, summer is the most enjoyable time of year “when the livin’ is easy,” as the George Gershwin song claims. We can relax in air-conditioned homes or sit by a swimming pool, sipping iced tea. As federal practitioners, and even more as humans, we need to realize that our patients, those on active duty, veterans, and the underserved populations who are the mission of the US Commissioned Corps and the Indian Health Service, are not as fortunate. As temperatures climb, we must redouble our efforts to educate our patients about the dangers of extreme heat and advocate for policies and procedures in our respective federal agencies that will positively impact climate change.

During clinical encounters with patients with mental health conditions, we should be mindful of the potential increase in substance use, suicidal ideation, aggressive impulses, and medication adverse effects when temperatures are high. Most important, we must raise awareness and participate in public health initiatives to ensure that populations whose prior service, current duty, or

health disparities place them at greater risk of harm from increasing temperatures have access to shelter, cooling, food, health care, psychosocial services, and mental health treatment.

### Disclaimer

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