

Neurological Disorders in Prisoners: A Neglected but Complex Problem

Dr Audrey Nath

NEUROLOGICAL DISORDERS IN PRISONERS: A NEGLECTED BUT COMPLEX PROBLEM

Incarceration presents a unique set of challenges for the health of individuals, particularly when it comes to neurological conditions. In a comprehensive review, **Dr Audrey Nath** and **Samuel Han** have delved into the often-overlooked realm of neurological health. From learning disabilities to epilepsy, sleep disorders, infectious diseases, nutritional deficiencies, toxicology-related issues, and traumatic brain injuries, their review sheds important light on the complex landscape of neurological health within the prison system.

Raising Awareness and Fostering a Better Understanding

In the USA, incarcerated individuals constitute a highly marginalised and underserved population. Over 2 million people are currently behind bars, of whom more than 800,000 require care for chronic medical conditions. Among the myriad health concerns faced by incarcerated individuals, neurological complaints are alarmingly prevalent, constituting approximately 10% of outpatient chief complaints.

Dr Audrey Nath is committed to illuminating the prevalence and impact of neurological conditions in incarcerated individuals in the USA. Working with Samuel Han, she conducted a comprehensive literature review to raise awareness of this critical issue and to foster a better understanding of the challenges in accessing adequate neurological care in this context.

Dr Nath and Mr. Han's combined expertise is a beacon for advocating improved healthcare delivery and outcomes for this often-overlooked segment of society. Their review casts a spotlight

on prevalent neurological conditions within the incarcerated population, encompassing learning and intellectual disabilities, epilepsy, sleep disorders, neuroinfectious diseases, nutritional deficiencies, toxicology-related issues, and traumatic brain injuries.

Prevalence and Impact of Learning Disabilities

As Dr Nath and Mr Han highlight, there is a higher occurrence of intellectual and learning disabilities among the incarcerated population compared to the general population. Reading and spelling difficulties, for example, afflict up to 50% of prisoners, a stark contrast to the 5% prevalence in the general population. Oral language impairment also affects as many as 50% of young offenders. Moreover, attention deficit hyperactivity disorder is estimated to be five times more common in juvenile prison populations and ten times higher in adult prison populations.

Lower education levels and limited access to therapies in the school system are potential contributors to the elevated prevalence of learning disabilities in the

prison population. These conditions significantly impact an individual's ability to participate in police interviews, potentially increasing the risk of false confessions. As such, the consideration of cognitive impairments during interviews and interrogations within the criminal justice system remains an important concern.

Epilepsy and the Importance of Seizure Control

Epilepsy is also more prevalent among incarcerated communities, with rates from three to four times higher than those observed in the general population. Alarmingly, over 70% of incarcerated individuals with epilepsy experience uncontrolled seizures, far surpassing the expected 33% in the general population.

Uncontrolled epilepsy can have fatal consequences, leading to Sudden Unexplained Death in Epilepsy Patients (SUDEP). While the exact incidence of SUDEP in incarcerated populations remains uncertain, the need for proper medication administration for incarcerated epilepsy patients and seizure control within the prison system is undeniable.



Sleep Disorders in Adolescents and Adults

Sleep disorders are a pervasive issue in detention facilities and prisons, influenced by factors including an individual's health status and pre-existing psychiatric conditions. Incarceration itself can also exacerbate sleep difficulties. Dr Nath and Mr Han explain that factors like noise, excessive lighting, uncomfortable bedding, or even the absence of bedding, all contribute to sleep challenges for individuals in detention.

For young people in detention, sleeping conditions can be even worse. Insufficient sleep in detained juveniles can lead to severe health and psychiatric problems, including depression, neurobehavioral issues, aggression, and even type 2 diabetes. Similarly, in adults, poor sleep is linked to increased aggressive behaviour. Some incarcerated individuals may also have sleep disorders like sleep apnoea or narcolepsy, but these conditions can be challenging to diagnose and manage because of limited resources in the prison system.

Infectious Diseases and Neurological Health

Incarcerated individuals confront unique challenges with infectious diseases that affect the nervous system. Indeed, implementing distancing measures to prevent the spread of communicable diseases is challenging within correctional facilities. More recently, the COVID-19 pandemic caused specific problems, with incarcerated populations experiencing higher infection rates than the general public.

Malnutrition and Behaviour

Nutritional deficiencies are prevalent among incarcerated individuals and can lead to neurological effects on the brain and the nervous system. In some cases, people in prison do not get enough food, resulting in being underweight. In the USA, the meals provided in county jails often represent an insufficient daily intake of essential micronutrients such as vitamin D, magnesium, and omega-3 fatty acids. Moreover, even when inmates are given enough food, hunger strikes can lead to nutritional problems.

People who have been in prison in the past or have spent a long time in a condition of incarceration are more likely to be undernourished, even after release from prison. In the long term, such nutritional deficiencies can continue to negatively influence their behaviour.

Neurological Consequences of Substance Overdose

Substance overdoses, whether from prescription or illicit drugs, can result in neurological changes among incarcerated individuals during and after incarceration.

After being released from prison, adults face a high risk of overdosing on drugs, especially in the first year. This risk is even higher for those imprisoned within the past 2 to 5 years. Initiatives such as distributing naloxone kits to reverse the effects of opioid overdoses, along with education upon release, have shown promise in reducing opioid-related fatalities among recently released individuals.

Increased Risk of Traumatic Brain Injury

Dr Nath and Mr Han also point to elevated occurrences of traumatic brain injury (TBI) in incarcerated individuals compared to the general population. More specifically, rates of TBI in prison populations range from 46% to 87%. Further, instances of TBI occurring within correctional facilities emphasise the need for better monitoring and care for TBI in incarcerated individuals to avoid serious and sometimes fatal consequences.

Advocating for Equitable Healthcare Access

The review by Dr Nath and Mr Han underscores the fundamental right to quality healthcare, irrespective of one's circumstances. It highlights disparities within healthcare systems and calls on society to uplift marginalised populations. This important paper serves as a call to action, urging us to extend a helping hand to those often left without a voice, emphasising the need for equitable healthcare for all corners of society. Further research will be key to better understanding and managing neurological conditions in this particularly vulnerable and underserved population, as well as ensuring their well-being and rehabilitation.



Meet the Researcher

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Dr Audrey Nath graduated from Rice University with a BA in Cognitive Sciences and a BS degree in Bioengineering. She then completed a PhD in Neuroscience at UT Health Houston. Dr Nath is board-certified in neurology with special qualifications in child neurology, clinical neurophysiology, and epilepsy. She is a Clinical Assistant Professor in the Department of Neurosurgery at the University of Texas Medical Branch. Dr Nath has contributed to several research publications in the field of neuroscience, including studies on topics such as paediatric epilepsy, audio-visual speech perception, and cortical processing of sensory information. Her research highlights a commitment to advancing our understanding of neurological conditions and their impact on marginalised populations.

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KEY COLLABORATORS

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FURTHER READING

S Han, A Nath, [Neurological Conditions Among the Incarcerated: A Medically Underserved Population](#), Journal of Neurology and Neurophysiology, 2022, 13(12), 001-004.

