Editorial

The Tragedy of Chronic Pain and Its Psychosocial Impact: A Commentary on the Case of Luigi Mangione

James Giordano, PhD

This commentary explores the tragic case of Luigi Mangione, as detailed in Melanie Thernstrom's Wall Street Journal article, to address the complex interplay between chronic pain, psychological distress, and systemic inadequacies in healthcare. Chronic pain, as a biopsychosocial phenomenon, profoundly impacts not only physical functionality but also identity, cognition, and behavior, often leading to psychological destabilization and despair. Neurobiological evidence illustrates how chronic pain alters neural structures and functions, amplifying emotional reactivity and impairing judgment. Mangione's descent into violence exemplifies the detrimental cycle of pain, frustration, and alienation, exacerbated by systemic barriers such as inequitable healthcare access and insurance inadequacies. The discussion highlights the broader ethical implications for pain management, emphasizing the necessity of empathetic engagement, equitable care, and individualized therapeutic approaches. While advances in neurotechnology offer new diagnostic and interventional possibilities, their accessibility and integration into practice raise critical ethical concerns. Additionally, responsible opioid prescribing, informed by nuanced understanding of chronic pain, remains essential to addressing the dual challenges of effective pain relief and the opioid epidemic. This analysis calls for a comprehensive paradigm shift in pain care, integrating biopsychosocial methodologies, healthcare reforms, and ethical innovation. By addressing systemic inequities and prioritizing both high- and low-technology solutions, researchers, clinicians, and policymakers can better support patients and mitigate the far-reaching consequences of unaddressed chronic pain. Ultimately, this tragedy underscores the urgent need for actionable reform to prevent further individual and societal harm.

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Address Correspondence:
James Giordano, PhD
Departments of Neurology and Biochemistry and Pellegrino Center for Clinical Bioethics, Georgetown University Medical Center, Washington DC and Department of Defense Medical Ethics Center, Uniformed Services University of Health Sciences, Bethesda, MD
E-mail:
james.giordano@georgetown.edu

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A Tragedy Played-Out

In a recent article in the *Wall Street Journal*, author Melanie Thernstrom detailed accused gunman Luigi Mangione's tragic descent into desperation and violence (1). Her essay is a stark reminder of the complex interplay between chronic pain, psychological distress, and systemic inadequacies in healthcare, and underscores critical issues in pain management, healthcare policy, and the moral considerations for addressing chronic pain as a biopsychosocial phenomenon. In this commentary, I will examine Thernstrom's thesis through an ethical lens, exploring how chronic pain influences cognition, emotion, and behavior; the challenges posed by systemic failures in supporting and sustaining healthcare for pain patients, and the broader implications for researchers and clinicians dedicated to pain management.

Pain as a Neurological and Psychological Disruptor

As defined by the International Association for the Study of Pain (IASP) chronic pain is characterized by that which persists beyond the normal period of healing following some injury, insult or acute pain event (2); and in this way, is not merely a symptom but a disease state that profoundly affects the nervous system, and the well-being of the person-in-pain (3). Thernstrom poignantly highlights the psychological toll of chronic pain, asking, "Who would I be if I didn't have pain?"(1). Indeed, this question reflects a fundamental identity shift

experienced by many who suffer chronic pain; in that such pain disrupts not only physical functionality but also one's sense of self and agency (4,5).

Neuroimaging and electrophysiological studies reveal that chronic pain can alter the structure and function of both spinal and supraspinal neuraxes, and can modify node and network activity of anterior cingulate, sensory, motor and prefrontal cortices, as well as those of limbic loci within the amygdala and septo-hippocampal system (6,7). These changes can predispose individuals to heightened emotional reactivity, impaired judgment, and difficulty managing stress—phenomena evident in Mangione's transition from a high-achieving individual to one engulfed by despair and anger. His story exemplifies the cyclicity of pain, frustration, despair, and antagonism, in which pain exacerbates psychological distress, and distress, in turn, amplifies pain perception through dysregulation of the hypothalamic-pituitary-adrenal axis and ongoing sensitization of cerebral networks involved in emotionality (8).

The Socioeconomic Context of Pain and Healthcare

The frustration and despair evident in Mangione's story further elucidate how failures in the administrative hierarchies of healthcare support can amplify the suffering of chronic pain patients. The inability to access necessary care due to insurance limitations underscore the inequities of the United States healthcare system. Such barriers disenable clinicians' capabilities to render effective therapeutics, deny patients treatment, and in so doing exacerbate their feelings of helplessness, alienation, and mistrust of medicine as both practice and institution (9).

Studies have consistently shown that socioeconomic factors, including income and insurance status, significantly impact pain outcomes (10). Patients with limited financial resources are less likely to access multimodal pain management strategies, which often combine pharmacological, physical, and psychological therapies. Mangione was not of a lower socio-economic status; nevertheless, the inadequacy of insurance coverage for the apt care of his chronic pain underscores the psychological toll of this inequity, as revealed in the narrative and enaction of his anger toward an individual who he felt personified a healthcare system that prioritizes profit over patient care. Indubitably, it would be understatement to say that Mangione's actions were extreme. But a resort to hostility is not atypical, as many chronic pain patients may act-out, and exercise behavior(s)- inclusive of self-harm -in an attempt to solicit recognition and acknowledgement of the gravitas of their predicament (11). And, Mangione's turn to violence, while certainly not condoned, highlights the consequences in extremis that neglecting the multifocal needs of chronic pain patients may evoke.

Ethical Considerations in Pain Management

Mangione's case raises important questions about the ethical obligations owed to chronic pain patients. Pain is inherently subjective, and this is ever more so the issue with chronic pain-making it difficult to quantify and validate (12). This can lead to skepticism from clinicians, employers, and even loved ones, leaving patients feeling isolated and stigmatized (13). As researchers and clinicians, it is important to prioritize empathic engagement with patients, recognizing the profound impact of pain on every aspect of their lives. This also underscores the need for responsible opioid prescribing. While opioids remain a critical tool for managing certain types of chronic pain, their misprescription, misuse, under-treatment of pain, and the infiltration of illegal opiates have contributed to the opioid epidemic, further complicating effective pain care. Such care requires a nuanced, individualized approach informed by ongoing research and clinical best practices (14,15).

Advances in neurotechnology offer new possibilities for understanding and treating chronic pain. Assessment techniques such as functional magnetic resonance imaging (fMRI), magnetic tractography, and biomarker analyses have shown promise in identifying patterns of neural mechanisms and loci underlying pain; and current and emerging neuromodulatory tools (e.g., spinal cord stimulation; transcranial or vagal electrical and/or magnetic stimulation; deep brain stimulation) have proven to be valid and of value in treating types of chronic pain (16,17). However, these technologies raise further ethical questions about accessibility, affordability, and provision of such state-of-the-science approaches (18), and the potential for overreliance on such technological intervention may only exacerbate extant inadequacies and inequities in healthcare coverage (19). Thus, effective and efficient integration of such neurotechnological innovations into a viable system of chronic pain care will require informed policy re-evaluation and reform (20,21).

Toward a Comprehensive Pain Management Paradigm

The Luigi Mangione story is surely a tragedy, and one that is revealed and was enacted on many

levels. It is surely a tragedy of a life broken, and of one taken; and it is also reflects a human tragedy of a larger scale, in which pecuniary cupidity is superimposed upon- and suppresses -the moral responsibilities of humanitarian medical care. Perhaps therein lies the object lesson. What is needed is a more comprehensive paradigmatic approach to pain management; which entails and obtains [1] biopsychosocial assessment and treatment – inclusive of both high-tech and low-tech approaches as necessary to effectively assess and treat the person-in-pain; [2] healthcare system reforms that address systemic barriers to care, including high costs, insurance limitations, and disparities in access to pain management services; and [3] ethical research and innovation, not only in diagnoses and interventions, but in education and training so as to ensure prioritization of relevant findings (viz., what we have referred to as "medically-based evidence" (21)). Taken together, such a paradigm would enable clinicians to gain deeper insight to the realities of chronic pain, and to the current palette of evaluative and therapeutic methods available in practice; and to empower patients to access and receive the care they require and deserve.

Over a decade ago, Michael Schatman and I defined and described what we referred to as a "crisis in pain care" (22,23). With no hubris intended, I think we were at least observant, if not prescient in many ways to what was yet to come. As we noted, a crisis is literally a time of change, and the negative impact of many such changes have been realized and felt, by individual patients, the field of pain medicine, and society writ-large. We can grieve for the tragedy that has unfolded, or, as John Shook have opined (43) we can heed pain's prescription, and rally action toward improvement. The reforms discussed may constitute something of a sea-change, yet, I believe that continued engagement with policy-makers, and sustained virtue in practice may well prove be more than mere drops in the bucket to initiate a much needed turning tide.

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