

The accelerating societal entropy undermines mental health

According to the second law of thermodynamics, it is inevitable that entropy will continue to increase over time.¹ Entropy is a measure of disorder, which can eventuate in chaos and lead to profound uncertainty, with serious psychological consequences.

The increase in entropy is usually gradual. It took hundreds of years for powerful empires and civilizations to collapse and disappear. Inanimate objects such as a house, a piece of furniture, or a piece of equipment eventually deteriorate and break down over time. Tidy offices will become messy, cluttered, and dirty unless attended to regularly. Living organisms, including humans, inevitably undergo an aging process with cellular senescence, atrophy, and loss of cerebral, muscle, and bone tissue, ending in death. Even human relationships will eventually fracture, wither, and end. The passage of time ruthlessly increases the entropy of everything in life. Even the 13-billion-year-old universe, which currently looks formidable and permanent to us, is inexorably expanding and hurtling towards a calamitous end a few billion years from now.

To slow down, halt, or reverse entropy, work and energy must be invested. A house requires regular maintenance for all its components to avoid deteriorating and becoming uninhabitable (very high entropy). Humans require massive amounts of work during fetal life, infancy, childhood, adolescence, adulthood, and throughout old age. This includes work by parents, teachers, friends, physicians, farmers, and manufacturers of food, clothing, and sundry supplies, all targeted to maintain an individual and slow the rate of entropy. But death is inevitable as the final stage of human entropy.

The brain is an entropic organ.² Psychiatric disorders can be conceptualized as a neurobiologic consequence of a major rise in brain entropy. The chaos created by high brain entropy will lead to a disruption of basic mental functions such as thought, mood, affect, impulses, behavior, and cognition. Brain entropy increases can be due to genetics or the environment, but most often are due an interaction of both (G x E).

Societal entropy and our patients

Psychiatric patients are deeply influenced by the context in which they live (society). The entropy of contemporary



Henry A. Nasrallah, MD
Editor-in-Chief

doi: 10.12788/cp.0295

Revised 11.8.22

We must invest our talents and skills to mitigate the impact of rising entropy on our patients

To comment on this editorial or other topics of interest:

henry.nasrallah

@currentpsychiatry.com



Editorial Staff

EDITOR **Jeff Bauer**

SENIOR MEDICAL COPY EDITOR **Eric Seger**

WEB EDITOR **Kathryn Wighton**

Art & Production Staff

CREATIVE DIRECTOR **Louise Koenig**

ART DIRECTOR **Pat Fopma**

DIRECTOR, JOURNAL MANUFACTURING
Michael Wendt

PRODUCTION MANAGER **Donna Pituras**

Publishing Staff

PUBLISHER **Sharon Finch**

DIRECTOR EBUSINESS DEVELOPMENT
Alison Paton

RECRUITMENT SALES MANAGER
Linda Wilson

Editor-in-Chief Emeritus

James Randolph Hillard, MD

Frontline Medical Communications

VP, SALES **Mike Guire**

VP, DIGITAL CONTENT & STRATEGY
Amy Pfeiffer

PRESIDENT, CUSTOM SOLUTIONS
JoAnn Wahl

CIRCULATION DIRECTOR **Jared Sonners**

In affiliation with Global Academy for Medical Education, LLC

PRESIDENT **David J. Small, MBA**

FRONTLINE | **MDedge**[®]
MEDICAL COMMUNICATIONS

283-299 Market St.
2 Gateway Building, 4th Floor
Newark, NJ 07102
Tel: (973) 206-3434
Fax: (973) 206-9378
www.frontlinemedcom.com

Subscription Inquiries:
subscriptions@mdedge.com

Published through an
educational partnership with

UC CINCINNATI

society is rising at an alarming rate, which means that order is rapidly degenerating into disorder at an unprecedented pace. When the COVID-19 pandemic abruptly emerged in early 2020, it was a major public health shock that drastically changed the lives of all citizens and dramatically increased societal entropy. The pandemic led to lockdowns, fear of death, gut-wrenching uncertainty (especially for a whole year before vaccines were developed, but even after), loss of socialization and sexual intimacy, loss of employment, financial straits, and an inability to access routine medical or surgical procedures. Everyone in society developed anxiety and acute stress reaction, but those with pre-existing psychiatric disorders suffered the most with an intensification of their symptoms.

The unforeseen, sudden, and traumatically life-altering pandemic triggered various degrees of post-traumatic stress disorder across all age groups, and painful death in medically compromised individuals and older adults. Both physical and psychological entropy skyrocketed and the “order” of life as we knew it rapidly disintegrated into shambles and disorder. The abrupt traumatic jolt triggered various degrees of deleterious impacts on the brains of all who experienced it in real time. The rise in the psychobiological entropy was unprecedented across the structures of society, especially the population, its vulnerable human component.

But even as the worst of the pandemic is in our rearview mirror and life again has a semblance of normality, the rise of entropy continues to accelerate because we continue to be surrounded and engulfed by countless stressful events in

contemporary society. Those nagging stresses continue to transmute order to chaos and metamorphose comforting predictability to entrenched uncertainty:

- Toxic political hyperpartisanship, with intense animus and visceral bidirectional hatred

- Racial tensions, with overt bias across groups

- Economic turmoil, with inflation and threats of recession

- Actual wars and threats of war

- Social media that spreads bad news and distorts facts

- An opioid crisis, with hundreds of thousands of deaths

- Skyrocketing crime, with a decline in policing and quick release of criminals without bail

- A ruthless and arbitrary “cancel culture” that doesn’t even spare the previously revered founders of the republic

- Cognitive dissonance of disparaging Abraham Lincoln despite his major achievement of eliminating slavery by waging a civil war

- The social and medical strife regarding access to abortion.

(I also would include some “entropy pet peeves” of mine: Torn clothes as a fashion statement, transforming tattoos from an oddity to a fad, nose rings that disfigure pretty faces, and banishing neckties for men.)

Our role in this scenario

As psychiatrists, we must step up to intensify the work needed to slow down and even reverse the dangerously rising brain entropy in our patients. But that is not an easy task given the implosion of societal norms and traditional values, along with the radicalization of beliefs, with utter intolerance of others’ beliefs. We also face the challenge of maintaining a

continued from page 8

modicum of resilience and wellness in ourselves, which can be antidotes to entropy.

It's impossible to stop the inevitability of rising entropy, both physical and psychological, but psychiatrists and other mental health professionals must invest their skills and talents now more than ever to at least slow down the pace of entropy among our patients. Otherwise, psychological chaos and disorder will be quite

damaging to their lives, and worsen their outcomes.



Henry A. Nasrallah, MD
Editor-in-Chief

References

1. Ben-Naim A. *Entropy Demystified*. World Scientific; 2007.
2. Carhart-Harris RL. The entropic brain - revisited. *Neuropharmacology*. 2018;142:167-178. doi: 10.1016/j.neuropharm.2018.03.010

We also face the challenge of maintaining a modicum of resilience and wellness in ourselves