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Brain Health Is a Determinant of Mental Health

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Addressing brain health is an essential new vector for the prevention of mental disorders and the promotion of mental well-being.

With the high and rising burden of mental, substance, and neurological disorders, we need to think about our approach to novel solutions.[1] This is particularly poignant given that the world is predicted to be increasingly challenged by stressful global shocks spanning climate crises, pandemics, as well as financial, political, and geopolitical.[2] The concept of brain health provides a new opportunity to bridge the mental health and neurology communities to harness collective resources and cultivate transdisciplinary scientific, public health, and economic innovations.[3]

The World Health Organization recently released a position paper on brain health, defining it as “the state of brain functioning across cognitive, sensory, social-emotional, behavioral and motor domains, allowing a person to realize their full potential over their life course, irrespective of the presence or absence of disorders.” Importantly, this paper demonstrates the central role that the brain plays in mental health, physical health, and other important societal outcomes.[4]

There are several recent examples of emerging brain science that exemplify the critical link between brain health and mental health. Studies of sleep and circadian rhythms, for example, demonstrate a bidirectional link, and they are both transdiagnostic and relevant to the entire life course. Brain disorders are often associated with sleep disturbances and changes in rest-activity rhythms.[5] Conversely, impairments in sleep health (e.g., loss of slow-wave or deep sleep) impair lymphatic function, thereby compromising the removal of metabolic waste. Treatment of sleep disturbances, such as insomnia, decreases the risk of clinical depression in older adults.[6] This becomes important when considering depression as a modifiable risk factor for neurodegenerative disorders like Alzheimer’s and vascular dementia.

Brain health provides a constructive framework for prevention and promotion efforts, another area where mental health has lagged behind physical health. It is established that all the primary drivers of noncommunicable physical health disorders overlap substantially with those for neurological and mental health disorders.[7] A western dietary pattern, physical inactivity, smoking, substance use, poor sleep, social disconnection, and socio-economic disadvantage are particularly common risk factors. Targeting these primary drivers has been shown to positively influence mental health across the lifespan. What is less well appreciated is that mental health is likely to be a far more catalytic driver of behavior change in physical health because effective interventions will need to take place among youth. The distal benefits of cancer and diabetes prevention in older age are very weak behavior change motivators in young people. In contrast, the wave of mental health problems is a powerful

motivator for young people to change behavior. As such, mental health can lead the charge of behavior change across noncommunicable disorders as well.

To optimize global brain health, we need transdisciplinary science to deepen our understanding of the dissoluble links between neurology, brain, and mental health. We also need diplomatic linkages between the fields of neurology and mental health. Figure 1 notes these inter-relationships as we suggest that a theory of change modeling may be helpful to illustrate this. There are a number of active groups working to bridge these fields, including the Brain Health Nexus, the European Brain Council, the OECD Neuroscience-inspired Policy Initiative, and the Brain Capital Alliance. Roche and the IHME are also reaching across the divide with their Brain Health Atlas Project.

Finally, the Brain Capital Alliance's Brain Capital Dashboard will provide objective measures of brain health investments that can be tracked over time. There are opportunities to engage economic think tanks in the brain health field given they are "green fields" for fresh, collaborative economic and policy activities. We hope these approaches will harness the global brain capital of specialized neurology and mental health clinicians, scientists, policymakers, and advocates.

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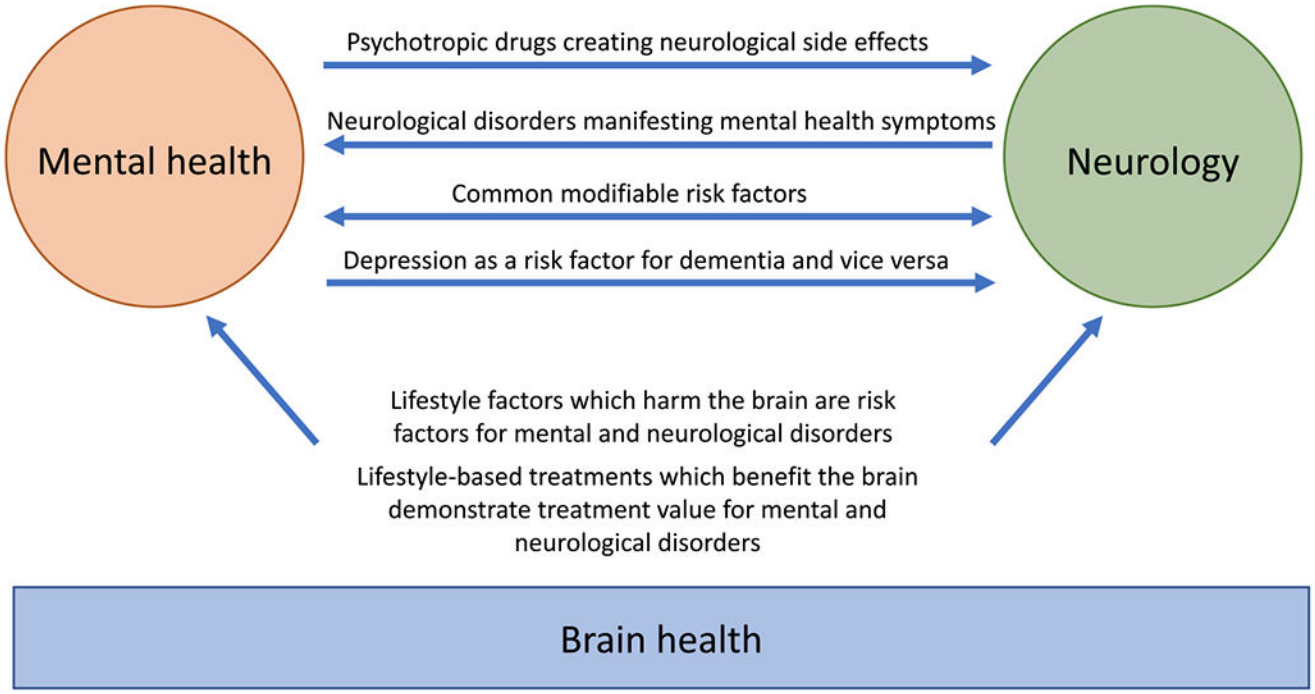

Opportunities for innovation:

- Invigoration of prevention efforts leveraging common risk factors among mental health and neurological conditions
- Transdisciplinary groups bridging and convening stakeholders from mental health and neurology e.g., European Brain Council, Brain Health Nexus, OECD Neuroscience-inspired Policy Initiative
- Projects bridging mental health and neurology e.g., Roche-IHME Brain Health Atlas, Brain Capital Alliance Brain Capital Dashboard

FIGURE 1.
Inter-relationships between neurology, mental health, and brain health.