

# Mental health delivery and neurogenetics discovery in Africa



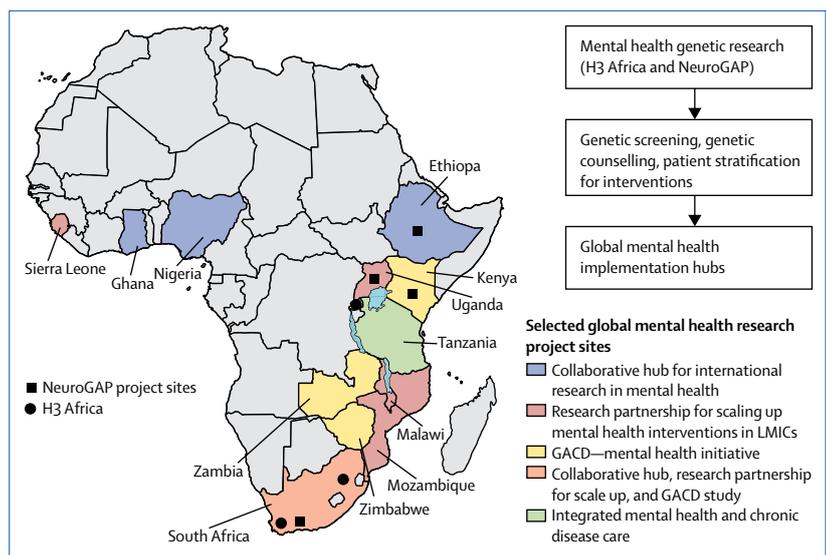
The burden of mental disorders is increasing in Africa because of population growth and increased life expectancy.<sup>1</sup> Global mental health researchers have advocated closing the treatment gap, given the cost-efficiency of scaling up evidence-based interventions.<sup>2</sup> Simultaneously, in discovery science, knowledge gaps in understanding the genetics of mental disorders in Africa, and the consequent risk of widening health inequalities, have been identified. Therefore, engagement between global mental health researchers and neurogeneticists, in the context of African mental health, is needed. In this Comment, we discuss key synergies, opportunities, and challenges.

First, the fields of neurogenetics and global mental health are focused on person-centered care. The global mental health community has emphasised contextually relevant interventions, whereas the field of neurogenetics has highlighted personalised medicine. Precision public health is an important aspiration, and requires better understanding of both neurobiological and psychosocial variation. Second, global mental health researchers and neurogeneticists are both strongly connected to human rights and ethics. Human rights and principles of equity are key pillars of global mental health whereas genetics research has emphasised ethical, legal, and social implications. Finally, as emerging scientific fields, these two research areas share other features, such as the use of multidisciplinary approaches, the increasing reliance on digital tools, and the aim of having a global impact.<sup>2,3</sup>

Global mental health research has emphasised the importance of understanding the full spectrum of mental health, from wellbeing to severe mental illness, and how to intervene across this continuum. This concept is also important for neurogenetics studies. It would be useful for neurogenetics studies in Africa to address resilience and wellbeing as well as key mental disorders, identifying biological and behavioural intervention targets along the mental health spectrum. Global mental health research has focused on early onset of mental disorders and understanding neurodevelopment in the context of key social determinants.<sup>2</sup> Neurogenetics is well placed to delineate mechanisms underlying neurodevelopment, including gene-environment interactions, and work on early gene programming might help to identify critical periods for intervention. Birth cohorts that optimise

the integration of neurobiological and psychosocial knowledge in Africa might be particularly useful.<sup>4</sup> Global mental health researchers argue that, in terms of mental health, all countries are developing, and mental health studies done in under-resourced countries might be useful in high-income countries.<sup>5</sup> For example, a mental health intervention based on problem-solving therapy, termed Friendship Bench, developed in Zimbabwe for people with depression, has been exported to the USA.<sup>6</sup> Analogously, the genomic diversity in Africa might help characterise genes relevant to mental health globally.

Conversely, neurogenetics studies have provided key concepts that might inform global mental health. First, neurogenetics has emphasised the potential value of its discoveries for precision medicine. Global mental health research has focused on broad transdiagnostic interventions, but there is growing attention to precision public health. With the development of mobile-health and person-centered tools, greater individualisation of care is possible globally and genetic testing in global mental health trials is now possible.<sup>7</sup> Second, neurogenetics has shown the heritability of mental disorders and the genetic overlap across some psychiatric and medical disorders (eg, migraine), supporting the conceptualisation of mental disorders as medical conditions. Global mental health



**Figure:** Global mental health research sites and mental health genetic research sites from H3 Africa and NeuroGAP projects  
 NeuroGAP= Neuropsychiatric Genetics in African Populations. H3 Africa=Human Heredity and Health in Africa. LMIC=low-income and middle-income country. GACD=Global Alliance for Chronic Diseases.

research on collaborative care might further contribute to clinicians addressing mental disorders as non-communicable disorders.<sup>8</sup> Finally, neurogenetics research has focused on user perspectives, and is often funded by family advocates. Global mental health is increasingly encouraging user participation in research and advocacy, and can usefully lobby for both discovery and delivery research priorities.<sup>9</sup>

Engagement of global mental health and neurogenetics researchers could face impediments. Scale-up of efficacious interventions might have immediate benefits, but the time from genetic discovery to clinical utility is long. Genetic testing is used in neuropsychiatry in resource-rich clinical settings; extension of genetic testing to African populations might be facilitated by combining discovery, clinical genetic testing, return of results, and genetic counselling.<sup>10</sup> Comorbidity of mental disorders is challenging for both global mental health researchers and neurogeneticists. Research in under-resourced countries on interventions for comorbid conditions is at an early stage, and although neurogenetics studies have shown genetic overlap across mental disorders, pleiotropic effects are not well understood. The fields of global mental health and neurogenetics are both cognisant of translation challenges. In global mental health, to go from efficacy trials to scale-up, multiple issues need to be addressed, including buy-in, training and supervision, quality maintenance, monitoring, and finance. There are analogous challenges for the field of neurogenetics in moving from laboratory findings to clinical application. Both fields must emphasise that mental health research is underfunded and that greater investment will substantially pay-off over time.

Discovery research has shown that the story of humans begins in Africa and, with population growth, genetic

research on the continent will become increasingly crucial. There has, however, been an imbalance in health research with 90% of all research emerging from high-income countries, in which only 10% of the world live. Greater engagement between global mental health and neurogenetics in Africa (figure) might be valuable in redressing this research imbalance.

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## How the humanities can ameliorate China's health-care crisis

Who wants to be a doctor when an epidemic occurs? The recent coronavirus epidemic has shown how crucial it is for medical doctors to possess strong mental health, resilience, and a spirit of self-sacrifice. This poses the question: what is the best way to cultivate medical doctors with such qualities?

Over the past century, advances in the medical sciences have engendered an optimistic spirit among

those in the profession. However, in addition to acute issues such as the outbreak of infectious diseases, challenging phenomena such as chronic diseases have threatened that positivity. Responding fully to these diseases will not be possible by relying solely on the sciences. Because caring for the health of mankind is the essence of medicine, the prevention of disease is in itself a social process, requiring human love that



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