



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

## Multidisciplinary research priorities for the COVID-19 pandemic

The need for real-time mental health monitoring is emerging as a key research priority in psychiatric research. The *Lancet Psychiatry* Position Paper by Emily Holmes and colleagues<sup>1</sup> identifies several “multidisciplinary research priorities for the COVID-19 pandemic”, proposing that real-time mental health monitoring (ie, through the use of smartphones and related connected technologies) is a central priority for understanding and managing the psychological impacts of the current crisis and future pandemics.

However, it is also important to acknowledge how further developments in real-time mental health monitoring are of great need and great potential benefit, even outside pandemic-related contexts. Currently, psychiatric research is approaching a point of saturation of observational and interventional studies that identify a wide range of putative behavioural and social factors for mental health across the life course.<sup>2,3</sup> Although useful, this body of research is primarily designed to establish the long-term mental health outcomes of a specific exposure during the course of weeks, months, or years.<sup>2,3</sup> Additionally, these paradigms of measurement, which are currently used as standard to investigate mental health determinants, mostly focus on average outcomes across a broad cohort, thus failing to capture the nuances in how specific behaviours or stressors have differential psychological effects between individuals.

Now, for the first time in history, individuals across the globe are increasingly connected with mobile devices capable of capturing real-time data from a plethora of sources, both actively (through user input) and passively (through sensors and

device use metrics).<sup>4</sup> Although active collection of real-time mental health data will improve our understanding of the psychological impacts of the current crisis, efforts should now also focus on improving our capacity for collecting and using data gathered by such devices on environmental, behavioural, and social factors that are thought to influence psychological wellbeing. Such data can enable researchers to engage in fine-grain analysis of how lifestyle factors, environment, in-person interactions, and exposure to online news and social media relate to mental health “in the moment”,<sup>5</sup> thereby providing new insights into the causal nature of those relations.

Furthermore, these novel methods of data collection could ultimately be used for creating an evidence base to identify individuals’ personal risk factors for adverse psychological states and to develop personalised just-in-time interventions for enhancing the self-management of mental illness. A further benefit to these approaches is the scalability of such technologies to meet the needs of low-income and middle-income countries. Clearly, the priorities identified by Holmes and colleagues are well timed, not only for the current pandemic, but also to improve mental health science more broadly. To realise their benefits, it is important to keep in mind how new approaches implemented through necessity within the current crisis can also be used to further develop understanding beyond the context of pandemics, potentially presenting new, scalable, and real-time methods for interventions for mental health.

JF is currently supported by a University of Manchester Presidential Fellowship (P123958) and a UK Research and Innovation Future Leaders Fellowship (MR/T021780/1), and has received support from an NICM-Blackmores Institute Fellowship. JT is supported by an American Psychiatric Association and American Psychiatric Association Foundation Psychiatric Research Fellowship.

\*Joseph Firth, John Torous  
joseph.firth@manchester.ac.uk

Division of Psychology and Mental Health, University of Manchester, Manchester M13 9PL, UK (JF); and Department of Psychiatry, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA (JT)

- 1 Holmes EA, O’Connor RC, Perry VH, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *Lancet Psychiatry* 2020; published online April 15, 2020. [https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1).
- 2 Köhler CA, Evangelou E, Stubbs B, et al. Mapping risk factors for depression across the lifespan: an umbrella review of evidence from meta-analyses and Mendelian randomization studies. *J Psychiatr Res* 2018; **103**: 189–207.
- 3 Fullana MA, Tortella-Feliu M, de la Cruz LF, et al. Risk and protective factors for anxiety and obsessive-compulsive disorders: an umbrella review of systematic reviews and meta-analyses. *Psychol Med* 2019; published online June 7. DOI:10.1017/S0033291719001247.
- 4 Firth J, Torous J, Stubbs B, et al. The “online brain”: how the Internet may be changing our cognition. *World Psychiatry* 2019; **18**: 119–29.
- 5 Bhugra D, Tasman A, Pathare S, et al. The WPA–*Lancet Psychiatry* commission on the future of psychiatry. *Lancet Psychiatry* 2017; **4**: 775–818.