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.

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Letter to the Editor

Can digital phenotyping be an answer to the COVID-19 challenges in psychiatry in India?

Respected sir,

People with psychiatric illness in India are particularly vulnerable to the impact of COVID-19 pandemic. This could be due to presence of multiple risk factors such as increased medical comorbidities, reduced access to health care services, overcrowding in psychiatric hospitals and difficulty in enforcing preventive measures in uncooperative patients. Hence, vigilance and special attention in providing care for people with psychiatric illness at times of COVID-19 is of elevated importance. COVID-19 pandemic adds hurdles to care including further reduced accessibility and mobility, irregular follow up, reduced access to usual medication, and worsening of symptoms due to added stress of COVID-19 such as anxiety, obsessions and depressive symptoms (Rajkumar, 2020). One of the solutions to these, in our opinion, is to develop digital phenotyping. Digital phenotyping is defined as the 'moment-by-moment quantification of the individual-level human phenotype in situ using data from personal digital devices'. "Mobile sensing" including collecting data on activity patterns, changes in location, social interactions such as number of calls and text messages etc., keyboard interactions and voice analysis tools constitute the technology behind digital phenotyping.What the world needs now is an objective, passive, ubiquitous technique to monitor affective, behavioural and cognitive functions continuously and a tool to simultaneously deliver interventions to areas of remote access and low resource settings (Huckvale et al., 2019). Early research is promising in disorders such as schizophrenia, bipolar disorder, depression, dementia, substance dependence and autism (Torous et al., 2015); however, there is a lack of studies from India.

As it is with most technology, digital phenotyping too is not without hurdles. Big volume and high noise data and the complexity of its analysis pose a large challenge. Given the lack of large-scale longitudinal studies the reliability and validity of this tool is yet to be established. Perhaps the most apprehensive of the challenges is the ethical concerns where the nature of data collected raises age old issues of accountability, privacy and transparency. Currently designed applications are tested in small sample sizes of consenting individuals and whether this is sensitive to cultural variations is questionable. Current studies are conducted in cross-sectional experimental conditions and this could bias the results (Huckvale et al., 2019; Insel, 2018).

There is a dearth of Indian literature evaluating digital phenotyping in our population. Given the socio-cultural diversity, the findings of international studies may not be generalizable to our setting. In India, studies report that nearly one-quarter of the population use a smartphone and given the COVID-19 pandemic, the numbers are likely to increase ("Number of smartphone users in India 2015-2022," n.d.). With respect to the COVID-19 pandemic, there is preliminary evidence for challenges such as patients finding it difficult to follow up and treatment adherence. This could lead to relapse and tools to identify early signs of relapse and also with an efferent arm to deliver therapy is much welcome (Rajkumar, 2020). India already has challenges such as poor engagement in treatment due to lack of awareness and stigma, therefore, a tool that could identify illness in early stages which does continuous assessment and is ubiquitous is needed for low resource settings (Shankardass, 2018).

We recommend that research pertaining to digital phenotyping is initiated involving informed and consenting participants. Data collection and analysis infrastructure that addresses validity, trust and privacy issues must be developed. There is an urgent need to establish national data security laws regarding accountability and breach of privacy as without this the technology cannot penetrate the population. There is a need for studies with larger sample size to improve the psychometric properties and minimize errors. Longitudinal and effectiveness studies are essential to evaluate the techniques to cater to the cultural diversity and dynamic nature of psychiatric symptoms. Cost effective studies are also needed in low resource settings to study the feasibility of this technology (Huckvale et al., 2019).

In conclusion, digital phenotyping could aid in the early detection of illness and relapse and has technology for early intervention which could prove to be priceless in the near future.

However, this technology will need to be developed to suit our population,be rigorously tested and implemented with minimal risk to users.

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Declaration of Competing Interest

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