MIND FOUNDATION

Does your phone know you better than your therapist?

DATE PUBLISHED

30 October 2020



In 2017, Tom Insel, the former director of the National Institute of Mental Health (NIMH) published a brief "viewpoint" article with the title "Digital Phenotyping – Technology for a New Science of Behavior" in the prestigious Journal of the American Medical Association (JAMA).1 Earlier in 2017, Insel left his former employer Alphabet (formerly Google) for the California-based Mindstrong Health, a company which, according to its website, is dedicated to "Transforming Brain Health: Better outcomes through measurement-based care."

What exactly is "digital phenotyping"? This again is described on Mindstrong's website:

"Digital phenotyping is the core of our measurement approach. Digital phenotyping is simply assessment based on smartphone use. As smartphones have become ubiquitous, their increasing use provides an un-precedented opportunity to measure mood, cognition, and behavior – passively, objectively, and continuously."

According to Insel, "even though smartphone technology promises to transform many aspects of health care, no area of medicine is likely to be changed more by this technology than psychiatry. Digital phenotyping is the term now used for describing this new approach to measuring behavior from smartphone sensors, keyboard interaction, and various features of voice and speech."

Sachin Jain and colleagues give a typical example of the application in their influential article "The digital phenotype", published in 2015: "For a bipolar patient whose mania is manifested in rapid, uninterruptible speech or hypergraphia, their disease could be characterized by the frequency, length and content of participation in social media. Through these varied applications, digital phenotypes can help ensure that early manifestations of disease do not go unnoticed and allow the healthcare system to develop more nimble, targeted and prompt interventions."2

Insel further states that “over the past 4 decades, behavioral expertise, once the strength of psychiatry, has diminished in importance as psychiatric research focused on pharmacology, genomics, and neuroscience, and much of psychiatric practice has become a series of brief clinical interactions focused on medication management. In research settings, assigning a diagnosis from the Diagnostic and Statistical Manual of Mental Disorders has become a surrogate for behavioral observation. In practice, few clinicians measure emotion, cognition, or behavior with any standard, validated tools.”

Do we really believe all this? Can the complexities of human behavior, and even more so of psychiatric disorders, be depicted by traces we leave on our smartphones? When we do not have a consistent concept of “psychosis”, how can we believe that “semantic coherence from speech samples [is] a predictor of psychosis”? 1 When we have no way to explain the enormous heterogeneity of mood disorders, how can we believe that “variation in several sensor measures [are] a correlate of mood ratings”? 1

Looking back at his time at the NIMH, Insel admitted that in his 13 years as the director of the NIMH he doesn’t think they “moved the needle in reducing suicide, reducing hospitalizations, improving recovery for the tens of millions of people who have mental illness. I hold myself accountable for that.”3 Now, in the form of digital phenotyping, he presents an even more reductionist concept of psychiatric disorders than the one that is expressed in the Research Domain Criteria (RDoC) of the NIMH, a dimensional framework supporting the integrative research of mental (dys)function across different levels of information and organization.

Insel concludes: “After 40 years of psychiatry becoming more mindless than brainless, perhaps digital phenotyping will help the pendulum swing back toward a fresh look at behavior, cognition, and mood. It has been said that new directions in science are launched by new tools much more often than new concepts. In this case, a tool that is inexpensive and ubiquitous may change the direction of the field.”1

My personal belief is that “digital phenotyping” might be an interesting tool to better understand certain aspects of human behavior, but it is far from being able to “change the direction of the field”. Such a direction would not only be more mindless, but even more “human-less”.

References:

1. Insel TR. Digital Phenotyping: Technology for a New Science of Behavior. JAMA. 2017;318(13):1215-6. doi:10.1001/jama.2017.11295
2. Jain SH, Powers BW, Hawkins JB, Brownstein JS. The digital phenotype. National Biotechnology 2015;33(5):462-463. doi:10.1038/nbt.3223
3. Rogers A. Star Neuroscientist Tom Insel Leaves the Google-Spawned Verily for … a Startup? WIRED [Internet]. 2017 Nov 5; Available from:https://www.wired.com/2017/05/star-neuroscientist-tom-insel-leaves-google-spawned-verily-startup/