Titles

Digital Therapeutics in Mental Healthcare: Promise, Progress, and Pitfalls

Brief Abstract

Our mental healthcare system has serious flaws. Treatments are expensive, access is limited, outcomes are modest at best, and large disparities exist by race, class, and geography.

Two technological innovations may fundamentally shift how we support people with mental illness. Digital therapeutics can provide highly scalable, cost efficient treatment and other supports that are available 24/7 without geographic constraints. Personal sensing allows digital therapeutics to deliver supports that are tailored to the specific needs of the person and the moment in time. These innovations are just now possible given the ubiquity and computing power of today's smartphones.

This talk explores the opportunities that these two innovations provide and the obstacles that must be overcome to reduce mental health disparities and improve outcomes for everyone.

Bio

John Curtin, PhD, is a Professor of Psychology at the University of Wisconsin-Madison. His previous training was completed at the Johns Hopkins University, Florida State University, and Brown University. He is the Director of Clinical Training for the doctoral program in Clinical Psychology at UW-Madison and the Director of the Addiction Research Center.

His program of research focuses on the use of personal sensing and machine learning techniques for psychiatric diagnosis and risk prediction, precision medicine, and "just-in-time" interventions for substance use and other psychiatric disorders. He has been continuously funded for this research by the National Institute of

Alcohol Abuse and Alcoholism, the National Institute of Drug Abuse, and the National Institute of Mental Health since 2001. His scholarship has been recognized with awards from the American Psychological Association, the Association for Psychological Science and UW-Madison. Professor Curtin also contributes to UW-Madison's teaching mission, offering courses on substance use disorders, statistics, and applied machine learning.

(Very) Draft Outline

1. The Current Mental Healthcare System
    - Mental health treatments and services havent evolved
    - Mental health outcomes are modest at best
    - Access is limited
    - Cost is high
    - Large disparities in access and outcomes by race, ethnicity, and class.

2. Recent, rapid advances in two technological innovations promise disruptive change
    - ATM example of disruptive change
    - Fundamental shift in how we treat and support people with mental illness
    - Increase access
    - Decrease disparites
    - Improve outcomes

3. Digital Therapeutics
    - Intervention and support apps delivered on smartphones
    - Available 24/7 without geographic constraints
    - Highly scalable and cost efficient
    - Examples of DTs
        - CBT4CBT
        - A-CHESS
        - reSET & reSET-O
    - Examples of interventions, tools and services
    - Preliminary evidence of efficacy

3. Personal Sensing

- What is it
- Example from grant
- What can it do
  - Predict
  - Recommend treatments for people, for moment in time?
  - Encourage adaptive changes to lifestyle
- Preliminary evidence-

4. Synergies between Digital Therapeutics and Personal Sensing

5. Obstacles and Recommendations
   - Privacy
     - Cambridge Analytica
     - Israeli Pegasus Spyware
     - Who has access to the data and who benefits? How are commercial apps supported?
   - Burden
     - Active vs. passive personal sensing
   - Disparities reified by Artificial Intelligence Algorithms (e.g., Weapons of Math Destruction)
   - Shelf life
   - Integration into clinical care