Twitter Thread by Daniel Coppersmith

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New preprint, "Just-in-Time Adaptive Interventions for Suicide Prevention: Promise, Challenges, and Future Directions" with @walthdempsey, Evan Kleiman, @drkatebentley, @SusanMurphylab1, and @mk_nock! https://t.co/QeMh22Dvu9

Abstract

The suicide rate has not changed in the United States over the past 100 years and there is a need for new ways of preventing suicide. Research has revealed that suicidal thoughts and behaviors and the factors that drive them are dynamic, heterogeneous, and interactive. Most existing interventions are infrequent (e.g., weekly sessions), not accessible when most needed, and not systematically tailored to the person using their own data. Advances in technology and statistics offer an opportunity to develop new interventions that may better match the dynamic, heterogeneous, and interactive nature of suicidal thoughts and behaviors. Just-In-Time Adaptive Interventions (JITAIs) are designed to provide the right type of support at the right time by adapting to changes in internal states and external contexts, offering a promising pathway towards more effective suicide prevention. In this review, we highlight the potential of JITAIs for suicide prevention, challenges ahead for developing JITAIs for suicide prevention, and possible solutions to these challenges.

First we highlight three hindrances to treatment efficacy for suicidal thoughts and behaviors:
-Frequency
-Accessibility
-Content
Most existing interventions are infrequent, not accessible when most needed, and not systematically tailored to the person

using their own data.

Just-In-Time Adaptive Interventions (JITAIs) are a potential solution to these hindrances to treatment efficacy. JITAIs are designed to provide the right type of support at the right time by adapting to changes in internal states and external contexts (https://t.co/7OGzELv8HL).

Components of JITAIs include:
-Decision points
-Intervention options
-Tailoring variables
-Decision rules
-Proximal outcomes
-Distal outcomes
Image from (https://t.co/7OGzELv8HL)

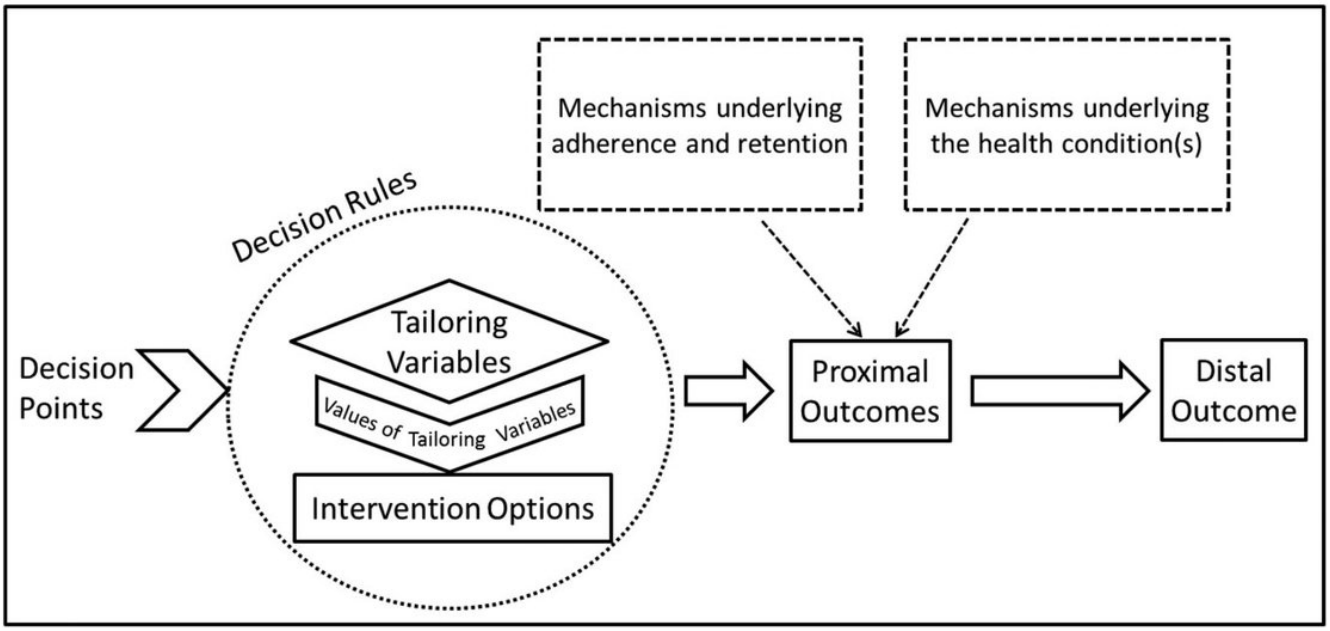
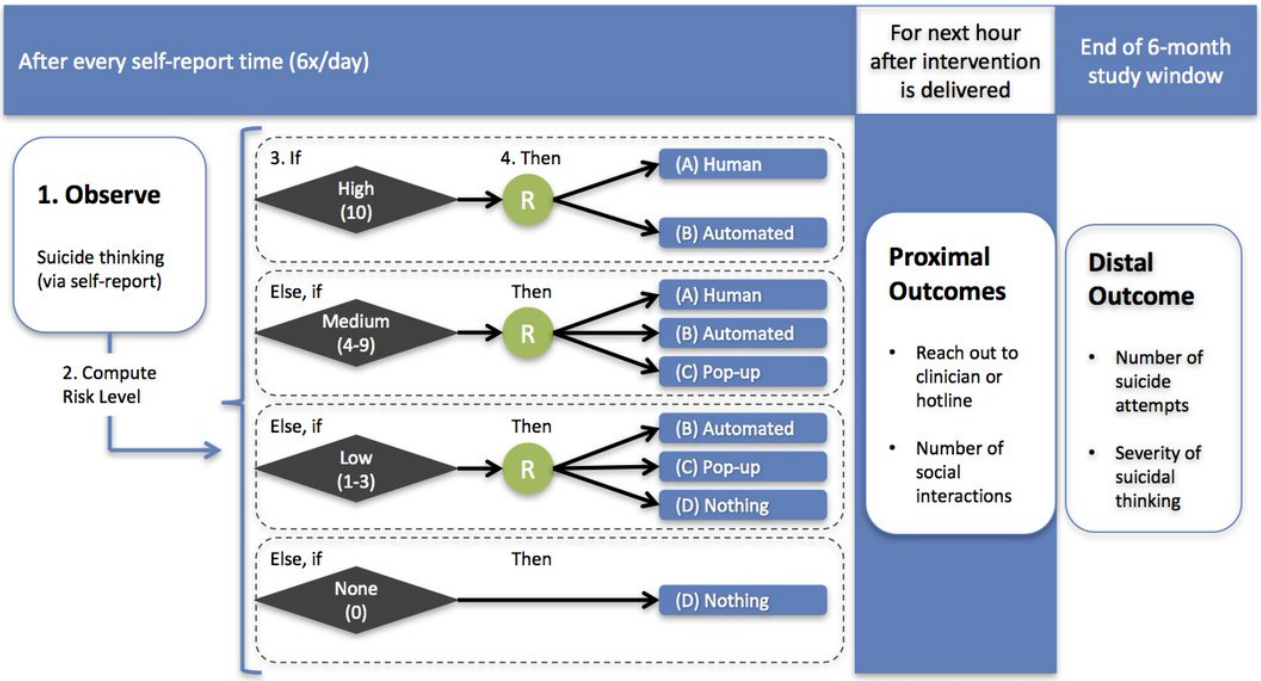


Figure 1.
Conceptual Model of JITAI Components

We provide an example of a JITAI and Micro-randomized Trial (https://t.co/dbQIWHO0dU) for suicide prevention. This intervention would specifically be targeting social support based on our previous work (https://t.co/e53j9VVE1u).



We review three challenges for JITAIs for suicide prevention:
-Measurement of real-time suicide risk
-Balancing risk and receptivity
-Ethics of real-time interventions

We highlight three future directions for JITAIs for suicide prevention:
-Identifying states of risk and receptivity
-Matching mechanisms and interventions
-Integrating into clinical care

JITAIs for suicide prevention hold immense potential to increase access to care and reduce suffering. The potential of JITAIs is reflected in its ability to match the nature of suicide risk. The journey towards realizing the potential of JITAIs, however, remains challenging.

Thank you to all the brilliant collaborators and co-authors on this paper! A special thank you to @walthdempsey, who since I showed up in his office as a first year graduate student has been incredibly kind and patient in teaching me about statistics and mobile health.