SARA
Substance Abuse Research Assistant

Increase engagement of substance use data collection among 14-24 year olds

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Background

• Substance use is a public health problem.

• Adolescents and emerging adults (14-24 year) are at high risk

• Self-reporting
  - Use of Alcohol, marijuana, cigarette
  - Causes of the using substance: stress, hopefulness
Engagement
mHealth apps generally suffer from **low** engagement

- Nearly 50% users drop off within 30 days
- App opened 2.7 times per week
Survey
(loneliness, mood, hopefulness)

2 active tasks
(reaction time, spatial memory)

between 6PM and midnight

Data collection event

4PM 6 PM

12AM

REWARD
$1

for every 3 days of consecutive data collection
Habituate?
Randomize
Memes

Survey \( p=0.5 \) Nothing

HUMAN
I REQUEST YOUR ASSISTANCE
Life-insights

Active tasks \[ p=0.5 \] Nothing

[Graph showing relaxed vs stressed]
Operant conditioning
Push notifications

Data collection period

4PM 6 PM 12AM

Inspirational message
Reminder message

Data collection event

Push notification

REWARD
Everyday at 4PM

$p = 0.5$

Nothing

Inspirational message
Reciprocity
Future work

• Currently a clinical trial is ongoing

• Just-in-time adaptive intervention
  – reinforcement learning
  – **Context**: survey, active tasks, sensor
  – **Action**: fishes, memes, notifications
  – **Outcome**: data collection happened or not

• Therapy
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