EMA Research for Suicide Prevention: Practical examples in 3 settings

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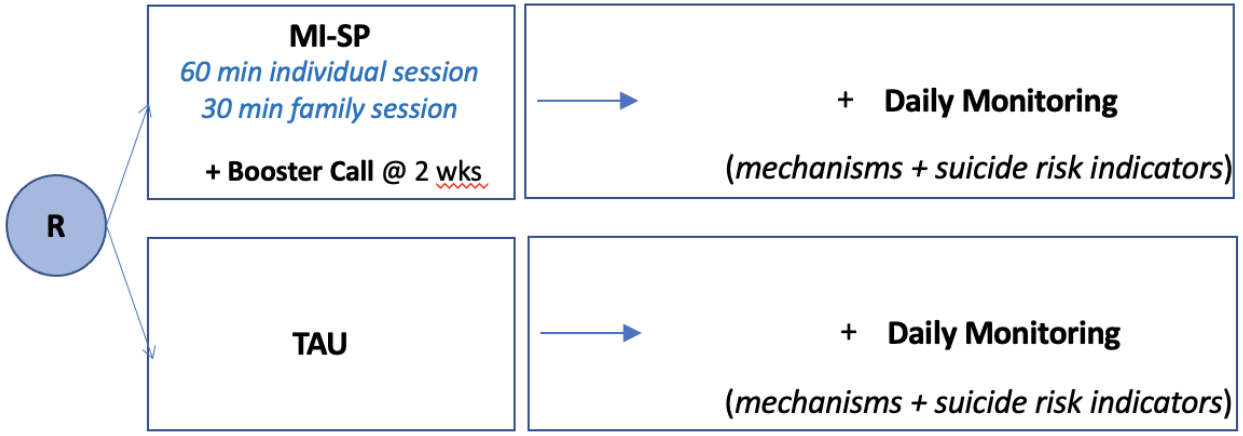
- Post-discharge transitions are associated with ↑ suicide risk (Ching et al, 2019)
- Ecological momentary assessment (EMA) have potential to identify short-term suicide risk or track response to interventions in the "real world"
- Growing use of EMAs and daily surveys in suicide prevention research (reviews Ammerman & Law, 2022; Gee et al., 2020; Kleiman & Nock, 2018)
- Questions remain about the clinical utility of these methods as well as practical and ethical considerations regarding implementing EMA protocols
  - Special considerations for high-risk transitions and subpopulations (e.g., minors)
- Objective: Describe 3 examples of EMA/daily diary protocols with youth
  - after hospitalization (adolescents)
  - During hospitalization (adolescents)
  - after ED (young adults)

Example 1

Population

- 34 adolescents ages 13-17 (76% female)
- Recruitment: psychiatric hospitalization (recent SI / SA)
- Data collection: Jan-May 2017
- Context: Post-discharge period



Design

- Daily survey: 1 x day for 28 days
  - ~32 questions
- Delivery: Qualtrics survey sent by text message between 5-7pm (open for 1.5 hours)
- Compensation: yes ($4/survey)
- Rationale:
  - Purpose to track intervention response
  - Different rules about phones at school
  - Risk management considerations

Funding: AFSP (PDF-0-028-14); MICHR

Czyz et al (2019), *J Clin Child Adolesc Psychol*

Example 1

Risk Management

- Risk-related items: SI and SA in 24h
- SI: At any point in the last 24 hours, did you have any thoughts of killing yourself?
  - Time intervals *when* SI occurred
  - Frequency, Duration, Urge items
  - **Filler items when SI = no**
- SA: At any point in the last 24 hours, did you try to kill yourself?
  - *What did you do? Did you do this as a way to end your life?*

Approach

- Start with informed consent!
- Two-tiered designation
  - Tier 1: SI in last 24 hours without intent or plan → automated message at end of survey
    - Encouragement to seek support and reminder about crisis resources
  - Tier 2: Current SI with intent or plan OR suicide attempt in last 24 hours → automated message + call from on-call research staff that same evening

Example 1: take aways

Risk-related Disclosures

- 650 /943 surveys completed (68.9%)
  - Decrease over time
- 159 (24.4%) SI occurrences by 24 (70.6%) adolescents
  - At 1 mo. phone assessment, 45% reported SI
- Current SI + intent/plan: >1%; SA: 2
  - 6 calls (4 adolescents)

Acceptability

- Generally high acceptability: minimally disruptive, vast majority would participate again, and…

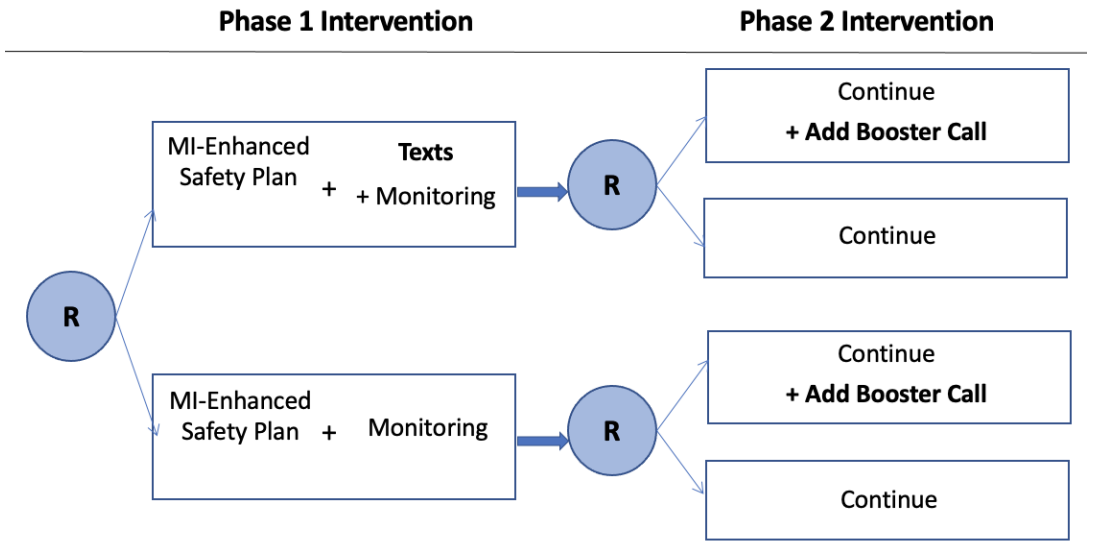
After filling out the daily questionnaires, my thoughts and feelings were usually	Week 2 (n=28)	Week 4 (n=34)
Positive / I felt better	21.4% (n=6)	28.1% (n=9)
Neutral / I felt the same	**78.6%** (n=22)	**68.8%** (n=22)
Negative / I felt worse	0% (n=0)	3.1% (n=1)

Czyz et al (2018), *Psychiatry Res*

Example 1 Part B

Population

- 78 adolescents ages 13-17 (68% female)
- Data collection: March ‘19-Jan ‘20
- Context: Post inpatient period



Design

- Daily survey: 1 x day for 28 days
  - ~35 questions
- Delivery: Qualtrics survey sent by text; open 5-8pm (w/ 1 reminder)
- Compensation: yes ($4/survey)
- Rationale:
  - Purpose to track intervention response
  - Different rules about phones at school
  - Risk management considerations

Funding: NIMH (K23-MH-113776)

Czyz et al (2021) *J Child Psychol Psychiatry*

Example 1 Part B take aways

Changes

- Longer window for completing surveys (3 hrs. vs. 1.5)
- No "gateway" question: *At any point in last 24 hours, did you have thoughts of killing yourself?*

Part B

- 1621 /2184 surveys completed (74.2%)
  - Decrease over time
- 631 (38.9%) SI occurrences by 64 (82.1%) adolescents
  - At 1 mo. phone assessment, 51.4% reported SI
- Current SI + intent/plan (n=16) >1%; SA: 5
  - 21 calls (13 adolescents)

Example 2

Population

- 62 adolescents ages 13-17 (69% female)
  - 1 withdrawn per treatment team recommendations
- Recruitment: psychiatric hospitalization (recent SI / SA)
- Data collection: Dec ‘18-March ‘20
- Context: during hospitalization
  - Unable to monitor responses in real-time: WiFi disconnected

Design

- EMAs: during hospitalization (M=6.62 days)
- Delivery: app on study-provided phone between 8:30am-9pm (open for 20 min)
- Compensation: yes (up to $70)
- Rationale: Assessment

Funding: University of Michigan, Dept of Psychiatry

Example 2

Risk Management

- Risk-related items:
- SI EMAs since last survey [time]
  - Frequency, Duration, Urge items
  - **Filler items when SI = no**
- Confidence to refrain from suicidal action

Approach

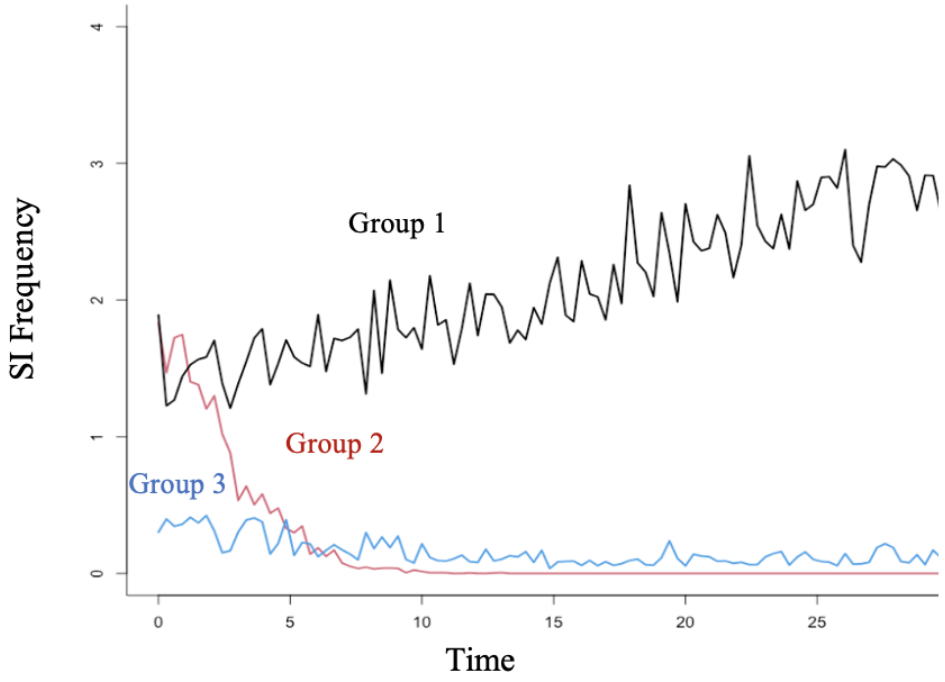
- Start with informed consent!
  - Responses not monitored by study or treatment team; when information shared
- Two-tiered designation
  - Tier 1: any SI on EMAs→ automated message at end of survey
    - Encouragement to seek support from tx team & reminder EMAs not being monitored
  - Tier 2: Review of EMAs day of discharge:

High SI urge or low confidence *within* 48 hours → inpatient team informed

Example 2: take aways

Risk-related Disclosures

- SI occurred ~41% of time, reported by 44 (72%) teens
- Risk met: 20 (32.7%) teens



Challenges and Lessons Learned

- Critical to partner with unit
  - Establish risk management criteria
  - Channel for communicating concerns
- WiFi restrictions introduced logistical challenges
  - Physical availability of staff on unit
- Phone access limitations
  - Missing data (~66% adherence)

Czyz et al (2022) *J Psychiatr Res*

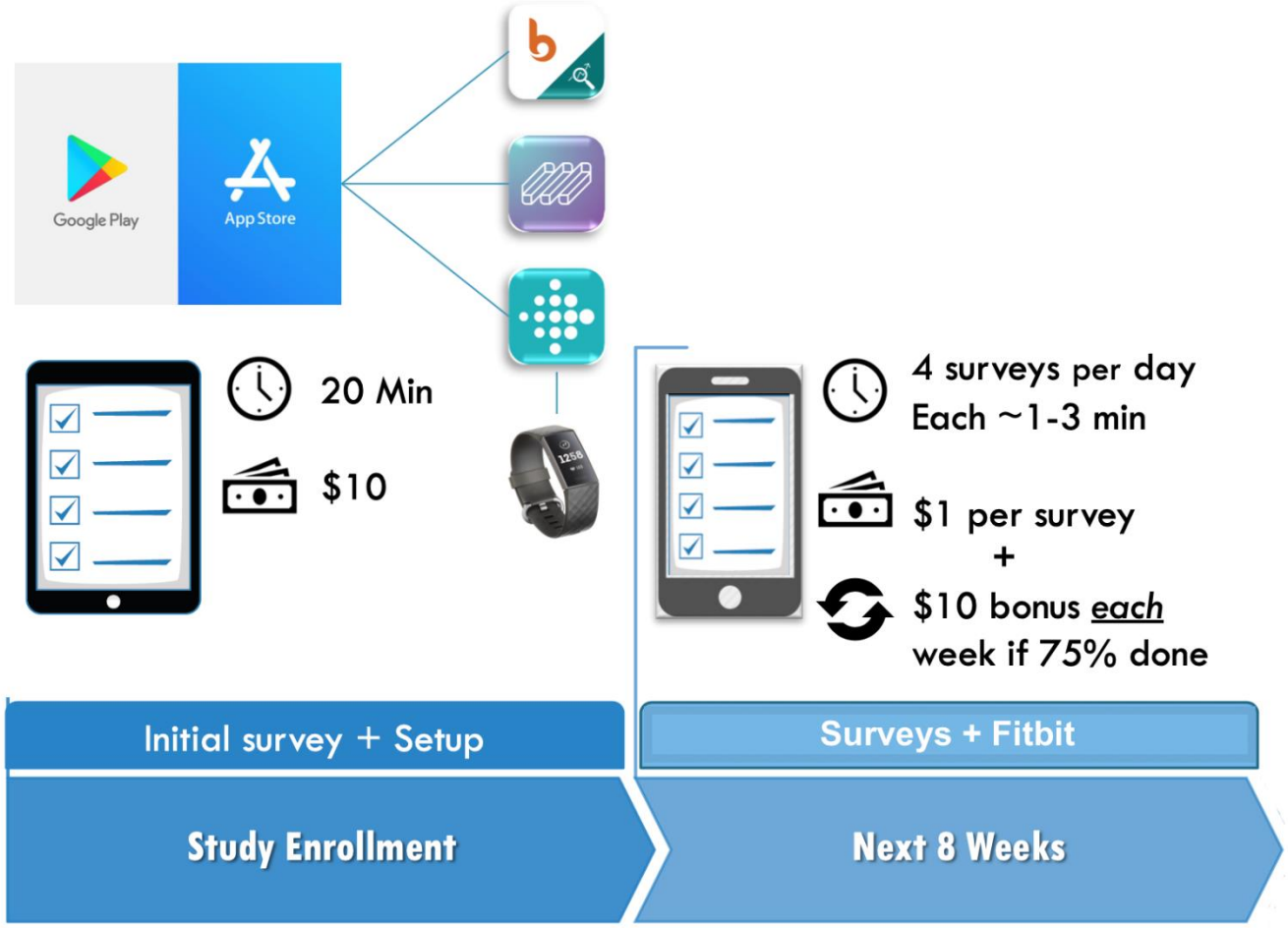
Example 3

Population

- 110 adults ages 18-25 (81% female)
  - 3 (2.7%) withdrew; 1 completed no EMAs
- Recruitment: ED (recent SI / SA)
- *Remote* data collection: July '20-August '21
- EMA surveys: 4 x day for 8 weeks
  - 9:30am-9:30pm (randomized in blocks)

Rationale: Assessment

Design



Funding: AFSP (SRG-0-036-19)

Example 3

Risk Management

- Risk-related items:
- *EMA SI*: Duration & severity items
  - Within last hour
- *End-of-day SI*: Frequency & severity
  - For the entire day
- SA: At any point yesterday, did you try to kill yourself?
  - *What did you do? Did you do this as a way to end your life?*

Approach

- Start with informed consent!
  - Consent script/ checklist clearly specifying EMAs are not reviewed
  - Review that app will provide reminders about crisis support
- EMA Platform

  → How/when to contact study team and reminder about crisis support

  → for any SI, message at end of survey
  - Encouragement to seek support and reminder about crisis resources
  - Reminder EMAs are not monitored

Example 3: take aways

Risk-related Disclosures

- SI instances: 2201 EMAs (14.9%) by 91 (85.8%) individuals
- End-of-day SI: 975 (25.7%) *SI days* by 86 (81.1%) individuals

Acceptability

- ~87.5% expressed interest in participating again (≧5 on 1-7)
- Top 2 barriers: too busy (79%); didn't see notification in time (58%). *18% noted didn't feel like completing.

After filling out the daily questionnaires, my thoughts and feelings were usually	End of study at 2 months
Positive / I felt better	10.5% (n=10)
Neutral / I felt the same	**76.8% (n=73)**
Negative / I felt worse	12.6% (n=12)*

*8/12 would participate again (≧5 on 1-7); 2/12 had low interest

Summary

- EMAs allow for more fine-grained understanding of suicidal thoughts and behavior in real-world conditions
  - New possibilities for identifying elevations in suicide risk
- Important to weight pros and cons of different EMA study designs and approaches
  - Frequency, duration, study purpose → implication for burden, adherence/missing data
- Risk management procedures warrant consideration of context (broadly defined), resources, and population
  - More conservative approach could be warranted if minors assessed during high-risk period
  - Protocol could be feasible, yet still call for considerable staff resources
- Consult, consult, consult
  - Developing area; unique situations / applications

Thank you!

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