Leveraging technology to collect qualitative & mixed methods data in asynchronous & remote settings

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Objectives

- What we mean by technology-based data collection
- Why use technology for data collection
- Three methods
  - N-of-1 trials
  - Just in Time Adaptive Interventions (JITAI)
  - Nominal group technique/Delphi method
- Putting together methods in a mixed methods study
- Cautions and considerations
What is technology-based data collection?

- Technology is the primary mechanism to gather quantitative and/or qualitative data.

Susan, what problems do you have getting medication refills?

I don’t have a car & no one to drive me.
Why use technology for data collection

- Convenience for participants
- Ease of recording data for later analysis
- Data quality typically high
- Possibility to enlarge samples and/or target recruitment
Opportunities for technology-based mixed methods data collection

- Commonly used
  - Active data collection
    - Surveys—Qualtrics, Survey Monkey, Captera, etc.
    - Focus groups, interviews—any videoconference platform
  - Passive data collection
    - Data extraction—GIS, pedometers, sleep, etc.
N of 1 Interviews

- Within subject interviews
  - Qualitative or quantitative
  - Designed to identify the optimal approach, treatment or intervention for an individual
Nudge me: tailoring text messages for prescription adherence through N-of-1 interviews

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- Recruited from Cardiac Clinics in person
- 1 on 1 interviews
- 30 minutes
- Hosted on Zoom
- Sent presentation attached PowerPoint and Google Slides via email
- Recorded on Zoom
- What do you like/ What do you dislike?
- 60 interviews total 20 at each of 3 sites
Day 1 continued...

**A**
We noticed that you haven’t refilled at least one of your meds. Reply 1 to let us know that you’ll get them refilled in the next 2 days.

**B**
Will you get your refill? Reply 1 for yes.
Will you get your refill? Reply 1 for yes

We know you're busy - when do you think you'll pick up your medication refills? Reply 1=today, 2=tomorrow, 3=the day after that
Day 1 continued...

A

We noticed that you haven’t refilled at least one of your meds. Reply 1 to let us know that you’ll get them refilled in the next 2 days.

C

We know you’re busy - when do you think you’ll pick up your medication refills? Reply 1=today, 2=tomorrow, 3=the day after that.
<table>
<thead>
<tr>
<th>Screen2</th>
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</table>

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
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<tbody>
<tr>
<td>Offensive</td>
<td></td>
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<tr>
<td>Don’t Understand</td>
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<tr>
<td>Don’t Like</td>
<td></td>
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<tr>
<td>TOTAL NEGATIVE (SUM of first 3 variables)</td>
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<td>0</td>
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<tr>
<td>Positive Response</td>
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<td>1</td>
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<tr>
<td>Other suggestions or feedback for specific messages</td>
<td>UCH116 “Positive simple quick reminder”</td>
<td>UCH116-“big brother like”</td>
</tr>
</tbody>
</table>
N of 1 interviews
Progress & Findings

• “I like that the messages put the ownership on self.”
• “I like the ones that relate to a hospital stay. I’ve been in the hospital and once you have done that you will want to avoid it in the future. It’s good motivation for me to stay out of the hospital.”
• “The message validates my feelings that it is hard to take meds. Realizing a break down in your body, the meds are the confirmation of that.”
• “This message makes me smile. It lightens it up and this can be a serious topic, so it is nice to smile.”
N of 1 interviews
Progress & Findings

Examples of messages that received negative feedback

- B
- C
- C

Joe always remembers his meds—he makes a habit of going every Friday since the pharmacy is right near his favorite menudo spot! Make a healthy habit by planning your regular medication pick up.
Just in time adaptive interventions (JITAI)

- During an intervention
- Uses quantitative and/or qualitative data to deliver the right aspect of an intervention at the right time and in the right amount
Just in time adaptive interventions (JITAI)

• FOCUS study for management of schizophrenia
  • Smartphone application sends alerts 3X daily on 5 domains (sleeping, mood, medication adherence, social functioning, coping)

• ACHESS focus on support for persons in recovery
  • Smartphone application offers support based on need using a CBT model
  • Also uses GIS to track where a person is and sends an “alert” when they enter a high-risk area (passive)

• Sit Coach
  • Smartphone alert after 30 minutes of uninterrupted keyboard activity to move
Just in time adaptive interventions (JITAI)

Reliance on data for decision and branching

• “Just in time” sending the right message at the right time
  • Tailoring: specific to the individual with active or passive engagement (e.g., the ACHESS example)
  • Timing: multiple touch points each day

• “Adaptive” altering the pathway of an intervention depending on the response of an individual (active) or their circumstances (passive)
Just in time adaptive interventions (JITAI)

Nudge

• Patient prescribed CV medication
• Just in time:
  • When they have a refill gap >=7 days
• Adaptive
  • Chatbot arm: message response will change based on user response
Just in time adaptive interventions (JITAI)

Nudge

Great work! Thanks for letting us know!

Done, already picked up my Metformin

This is a message from the Nudge Study at Denver Health.

Hi Gloria,

We noticed you haven’t refilled your Metformin. Reply 1= I’ll get them refilled in the next 2 days. Reply 2= I’m still working on a plan to get this done.

Para mensajes en Español por favor responda Español.

If you have already filled your prescription, let us know by replying with the word DONE.

Your doctor and healthcare team all agree that it is important for you to get your COVID-19 vaccine if you haven’t already! Go to vaccines.gov or call 1-877-CO-VAX CO (1-877-268-2926) to register for a shot. Questions about the vaccine? Text them to 814-561-2015.

This is the 1st of 5 messages you’ll receive until you can refill.

Reply STOP to quit, HELP for info.

Msg&DataRatesMayApply

Surescripts...zed_English
Row: #1 This is ...rom the ...
2/28/2022 5:50PM MST
Sent
Sent as Single SMS

Surescripts...zed_English
Row: #1 This is ...rom the ...
2/28/2022 5:50PM MST
Sent
Sent as Single SMS

Surescripts...zed_English
Row: #1 This is ...rom the ...
2/28/2022 4:00PM MST
Sent
Sent as Multi-part SMS (5 parts)
Nominal group technique

- Small group process for the generation of ideas—focus is on consensus
  - Silent generation
  - Round Robin
  - Clarification
  - Ranking
• Recruited via online social media ads
• Participants posted responses via an online bulletin board
• Multiple sessions over a three-day period
• Sent presentation attached PowerPoint and Google Slides via email
• What do you like/ What do you dislike? Differences by sexual experience?
Delphi Method

- Structured group interaction
- Employs multiple iterations of questionnaires with closed & open items
- Panels are of variable size
- After the initial questionnaire, subsequent iterations contain detail on individual’s and mean response ratings
Mixing methods

Formative  Implementation  Evaluation  Dissemination  Adaptation
Mixing methods

Formative: Focus Groups, N of 1, Nominal
Implementation: JITAI, Open Source, Passive data
Evaluation: In-depth Interviews, Nominal
Dissemination: Delphi
Adaptation: Focus Groups, N of 1, Nominal
Cautions

• Establishing rapport online
• Ensuring security and confidentiality
• Fraud
• Bots
Considerations

• Who are you working with?
• What are their preferences?
• Reliability and validity
• Replicability
• Pragmatism
Questions?

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