If I Text, Will You Respond?
A Meta-Analysis of the Impact of Text Messaging During Recruitment and Data Collection

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Antje Kirchner, RTI International
Ipek Bilgen, NORC at the University of Chicago
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The Challenge and Solution

- The challenge: Growing nonresponse (globally) and measurement error
- Suggested solution: (Emerging) alternative modes
  - Use of SMS/Text message for
    - Recruitment
    - Data collection
- When was the first text message sent (ever)?
- The first published study?
Cell/Mobile Phone Penetration (Global)

Mobile phone penetration,
(# subscriptions per 100 people; 1960-2017)


1985: 0.02
2006: 41.6
2009: 67.6
2012: 87.9
2017: 103.0

Mobile phone penetration, 2007 & 2017 (# subscriptions per 1,000 inhabitants)⁺

⁺ (↑) 2007: estimate.
⁺ (↑) Break in series.
⁺ (↑) 2008 instead of 2007. This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data codes: isoc_tc_ac1, isoc_tc_mcsupe and demo_pjan) and European Commission. Digital Economy and Society.

Cell/Mobile Phone Penetration (U.S.)

% of adults who own a cellphone and a smartphone

Use of SMS in Social Science Studies

- Number of published studies (Web of Science (SSCI); n=996; key words: text messaging; SMS; short message service)

- Bauer et al. (2003). Use of Text Messaging in the Aftercare of Patients with Bulimia Nervosa

- Jessen et al. (2003). Forensic Study of a Case Involving SMS Text-to-speech
Research Questions

Recruitment
1. What is the impact of (adding) text message as a recruitment mode on response rates [and nonresponse error]? 
2. How is this relationship moderated by other survey conditions (e.g., placement of text message, sequence, incentives)?

Data Collection
3. What is the impact of (adding) text message as a data collection mode on response rates, [nonresponse error, ] and measurement error? 
4. Which other survey conditions affect data quality obtained via SMS (e.g., type of completion: single sitting vs. modular; optimal length)?
Meta Analyses Methods

Include most recent advancements searching
- Conferences (ESRA, AAPOR; 2013-2018)
- Journals based on ESRA & AAPOR presentations

- Search terms
  - SMS, short message service, text, text messag*

► Start: n=82 potential contributions
  -> deduplication
  -> relevance (SMS; NOT: EMS, MMS, IM, emergency alerts)
  -> availability ➔ n=41
- Coding – work in progress for available studies (and to be expanded)
  - Recruitment/data collection, experiment type, outcomes, region, etc.
### Meta Analyses Methods

<table>
<thead>
<tr>
<th>Eligibility Criteria</th>
<th># of studies</th>
<th># of experiments</th>
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<tbody>
<tr>
<td>At least one of the survey recruitment and/or data collection modes is SMS</td>
<td>41</td>
<td>55</td>
</tr>
<tr>
<td>A split sample experimental design that assigns intervention (i.e. same survey conditions, otherwise)</td>
<td>20</td>
<td>34</td>
</tr>
<tr>
<td>Data on RRs or other outcomes from SMS and the other mode(s) are available</td>
<td>18</td>
<td>32</td>
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</table>

- Recruitment: 25 experiments*
- Data collection: 9 experiments*

* note: 2 experiments analyzed in both conditions
Research Questions

Recruitment – Results

1. What is the impact of (adding) text message as a recruitment mode on response rates [and nonresponse error]? 
2. How is this relationship moderated by other survey conditions (e.g., placement of text message, sequence, incentives)?
- **Experiment type**
  - Mode comparison vs. not (e.g., incentive exp.)
Text Messaging During Survey Recruitment

- **Experiment type**
  - Mode comparison vs. not (e.g., incentive exp.)

- **Recruitment type**
  - Prenotification, invitation, reminder
Text Messaging During Survey Recruitment

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- **Mode type**
  - Sequential vs. concurrent

![Bar Chart](https://example.com/bar-chart.png)

- Sequential: 16
- Concurrent: 9
Text Messaging During Survey Recruitment

- **Experiment type**
  - Mode comparison vs. not (e.g., incentive exp.)

- **Recruitment type**
  - Prenotification, invitation, reminder

- **Mode type**
  - Sequential vs. concurrent

- **Region**
  - EU, USA, other
Results: Recruitment – Mode Experiments (n=20)
Results: Recruitment – Incentive Experiments (n=4)

Overall Response Rates (%)

- Incentive Mentioned: 15.9%
- No Incentive: 15%
Research Questions

Recruitment
1. What is the impact of (adding) text message as a recruitment mode on response rates [and nonresponse error]?
2. How is this relationship moderated by other survey conditions (e.g., placement of text message, sequence, incentives)?

Data Collection – Results
3. What is the impact of (adding) text message as a data collection mode on response rates, [nonresponse error, ] and measurement error?
4. Which other survey conditions affect data quality obtained via SMS (e.g., type of completion: single sitting vs. modular; optimal length)?
Text Messaging for Data Collection

- Experiment type
  - Single vs. modular; fewer vs. more questions; response options; DC mode
Text Messaging for Data Collection

- Experiment type
  - Single vs. modular; fewer vs. more questions; response options; DC mode
- Region
  - EU, USA, Other

![Bar chart showing regions](chart.png)
Results: Data Collection (n=2 each)

- Modular (Single vs. Modular):
  - Yes: 49.7%
  - No: 51.5%

- Length (Fewer vs. More Q.):
  - Yes: 16.8%
  - No: 17.2%
Results: Data Collection

- Response options (n=1; Schober et al. 2014)
  - Response options: single- (“1”, “2”) vs. multi-character (“yes”, “no”)
  - Responses skewed towards fewer characters – esp. in multi-character condition

- DC mode (n=4)
  - Response rates:
    - Text = web < phone (Marlar et al. 2014)
    - Text > IVR/Voice; Human > automated (Schober et al. 2015, 2019)
  - Item response rates:
    - F2f to text > text to f2f (Velthoven et al. 2018)
What Now? A Few Recommendations for the Use of SMS

We are not quite there yet!

Tentative results:

- Complementing other recruitment modes with SMS pre-notification(s) and reminder(s) increases response rates (esp. outside of Europe and the US)
- Pick your battles: 160 characters (e.g., mention incentives or web link if applicable) → these are 86 characters
- Modular performs slightly better
- No considerable difference by number of questions (6-16 questions)
- Human interaction (e.g., social trust) enhances response rates in SMS data collection but may have adverse effects on measurement error
Limitations and Next Steps

Limitations

- Focus on recent grey literature
- Modeling assumptions

Next Steps

- Include Databases & Journals:
  - Ebsco Host, Jstor, Web of Science
  - POQ, JSSAM, SRM, MDA, JOS, Survey Methodology, Soc. Methods & Res., Field Methods, Survey Practice, etc.
Next Steps cont.

- **Add Measures:**
  - Representativeness, efficiency, samples size, sample type, longitudinal/cross-sectional, sponsorship, number of questions asked, breakoffs, measurement error indicators, etc.
  - Address confounding
  - Address differential rules and regulations (proxy region)

- **Improve Modeling:**
  - Use of random-effect meta-analytic models
  - Interaction of measures
  - Interaction of error sources
Thank you!

Antje Kirchner, PhD; akirchner@rti.org

Ipek Bilgen, PhD; bilgen-ipek@norc.org


