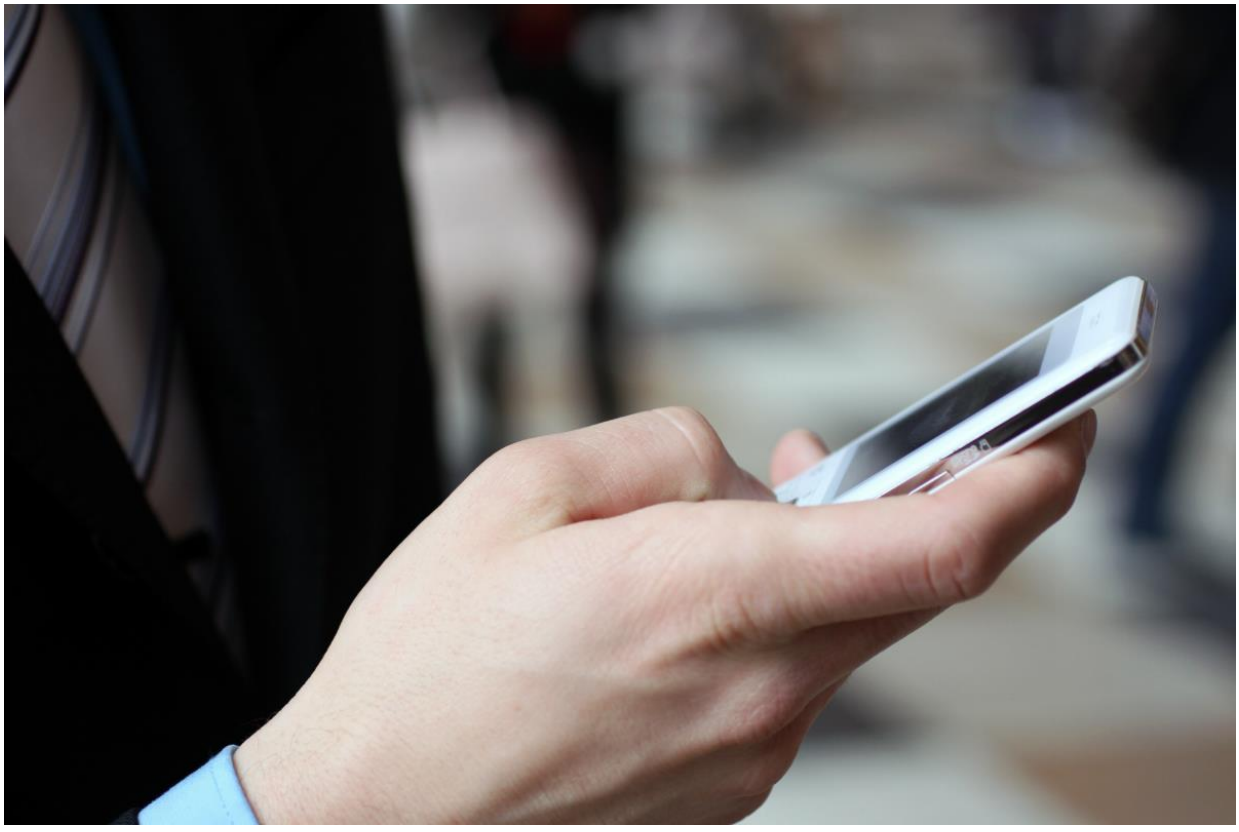
Effect of SMS appointment reminders on cross-sectional survey response

European Social Survey 2016



Author: Matt Jonas, National Centre for Social Research (matt.jonas@natcen.ac.uk)
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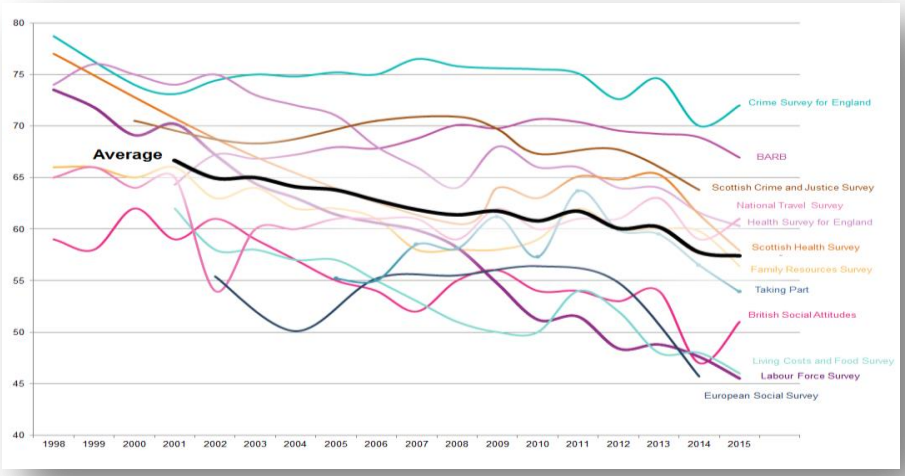
Abstract

A randomised trial was set up to explore whether sending SMS appointment reminders could improve survey response on UK fieldwork for the European Social Survey 2016. Cases were randomly allocated to be able to receive SMS appointment reminders (treatment) or not (control). Introducing the facility to send automated SMS appointment reminders increased the overall response rate in the treatment group by five percentage points compared with the control group (45% vs 40%). This was statistically significant (p=0.015). The use of SMS appointment reminders also affected the sample profile; responding individuals in the treatment group was significantly more likely to be aged under-35 and have no formal qualifications. Unexpectedly, the increase in overall response was not caused by an upturn in appointment completion. The difference was driven by interviewers in the treatment group being more likely to secure an appointment at their first call to an address.

Background

It is clear from our experience at the National Centre for Social Research, and from the wider literature, that over the long term it has been challenging to maintain the response rates that were traditionally achieved on face-to-face random probability surveys in the UK. Figure 0:1 shows the response rate trends between 1998 and 2015 on a number of major UK surveys.

Figure 0:1 Survey response rate trends UK



As part of our analysis of fieldwork data, we are looking for steps in the process that can be adjusted to encourage higher overall response rates and more representative samples. An analysis of fieldwork data for the 2014 European Social Survey (UK) showed that 43% of all appointments did not result in interviewing at the subsequent call. An examination of data from other large random probability studies ran by NatCen showed similar rates of appointment non-completion. On this basis, we decided to explore options for improving our appointment completion rate.

NatCen interviewers are routinely supplied with appointment cards which they fill out for participants, as well as 'Sorry I Missed You' cards which are left at addresses where

there is no reply. Given that physical reminders were already in use, we decided to explore how digital reminders could support the process. There is a body of evidence showing the efficacy of SMS reminders to improve attendance at appointments, mainly from healthcare settings.[1,2] In certain contexts, the use of SMS reminders have been shown to have as large an effect as a telephone reminder. They have also been shown to be highly cost effective. In addition, NatCen routinely uses SMS reminders to prompt behaviours like diary completion and online survey participation. Based on this information, we decided to trial the use of SMS appointment reminders in the context of a cross-sectional, random probability, social survey. Fieldwork for the European Social Survey 2016 was chosen to test this approach on.

Method

A full split sample experiment was carried out, with 50% of cases allocated to either the treatment or control group. The sample was split into 243 assignments of 20 addresses within a single postcode sector. Randomisation was carried out at the assignment level. The experimental groups were as follows:

- **Control**: Business-as-usual (interviewers have the option of leaving printed appointment cards with households).
- **Treatment:** Business as usual + interviewers request respondent mobile and automatic SMS appointment reminders sent.

Due to interviewers working across assignments allocated to treatment and control groups, there were a small number of cases in which SMS reminders were sent to control group addresses. All addresses in assignments where this occurred have been excluded from this analysis.

The analysis tested the following series of alternative hypotheses:

- First calls to addresses in the treatment group are more likely to result in an appointment.
- Calls following an appointment to addresses in the treatment group are more likely to result in contact/interviewing.
- Cases in the treatment group are more likely to take part in an interview than in the control group.
- Cases in the treatment group are more likely to make any appointments than cases in the control group.

Results

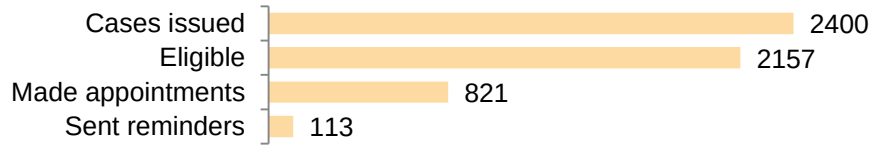
Reminders sent

Out of 2,157 eligible addresses in the treatment group, 821 made appointments (38.1%). Out of these 821 appointments, 113 were sent SMS reminders (13.8%).

[1] Car, J., Gurol-Urganci, I., de Jongh, T., Vodopivec-Jamsek, V., & Atun, R. (2008). Mobile phone messaging reminders for attendance at scheduled healthcare appointments. Cochrane Database of Systematic Reviews, (4).

[2] Hasvold, P. E., & Wootton, R. (2011). Use of telephone and SMS reminders to improve attendance at hospital appointments: a systematic review. *Journal of telemedicine and telecare*, *17*(7), 358-364.

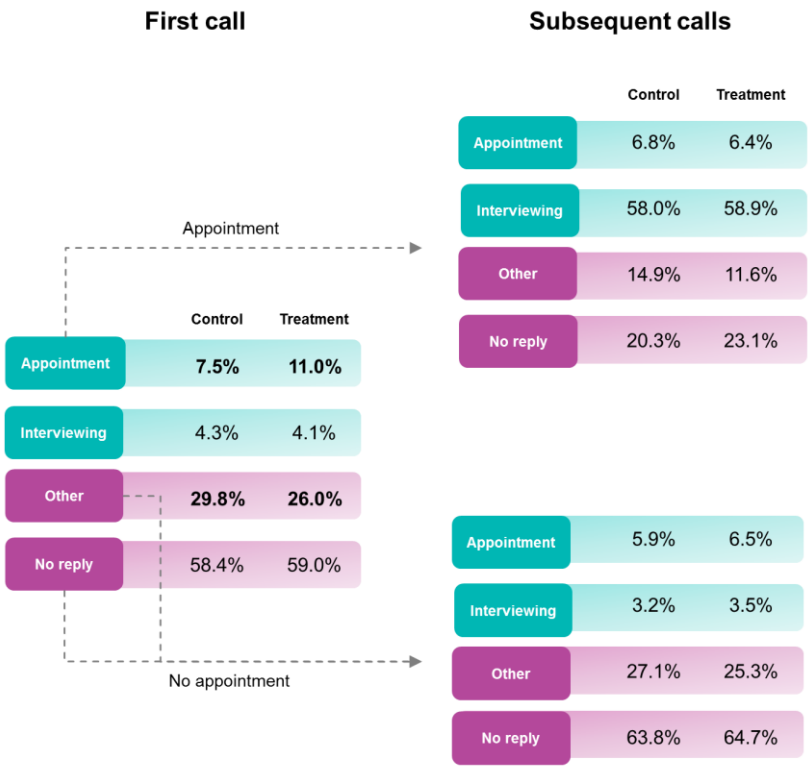
Figure 0:1 Reminders sent – treatment group



Call-level outcomes

Four possible outcomes were recorded at each call: 'appointment', 'interviewing', 'other contact'[3] or 'no reply'. As shown in Figure 0:2, at first call there were significant differences (p<0.01) between the treatment and control groups on appointments made (11.0% vs. 7.5%) and on other contact (29.8% vs. 26.0%). There were no significant differences at subsequent calls between the groups, either following an appointment or otherwise.

Figure 0:2 Call outcomes: control vs. treatment group[4]



Base: first call (Control 2,269 | Treatment 2385), subsequent calls following appointments (Control 760 Treatment | 937), subsequent call no appointment (Control 9,397 | Treatment 9,700)

[3] 'Other contact' are calls where contact is made but neither an appointment is made nor interviewing takes place.

[4] **Bold: significant difference p<0.01**

Base: first call (Control 2,269 | Treatment 2385), subsequent calls following appointments (Control 760 Treatment | 937), subsequent call no appointment (Control 9,397 | Treatment 9,700)

Case-level outcomes
In terms of definitive outcomes for cases in the treatment and control groups, there were significant differences (p<0.05) between the proportion of productive interviews (45.1% vs. 40.1%) and other non-contacts (1.5% vs. 0.4%). Cases in the treatment group were also six percentage points more likely to have made an appointment during fieldwork (p<0.01).

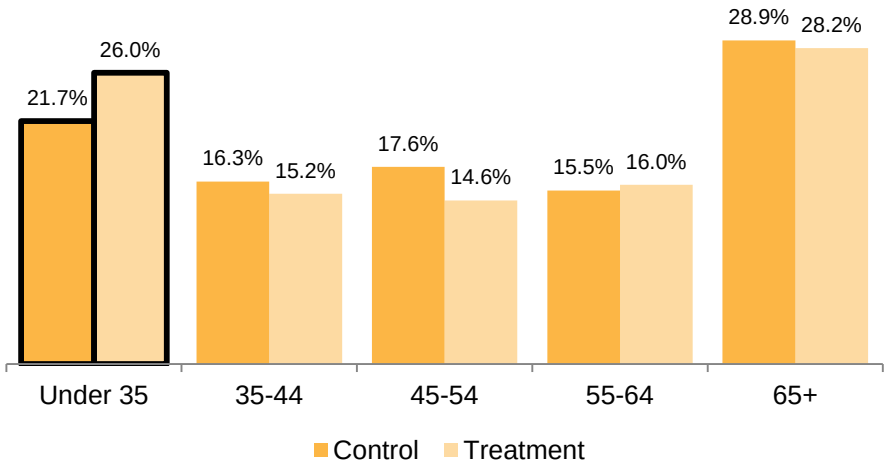
Table 0:1 Call data – control vs. treatment

Definitive outcome class	Control	Treatment	P-value
Refusal	41.7%	39.2%	.198
Non-contact in field	9.8%	9.4%	.781
Other un-productive	6.9%	5.9%	.225
Productive	40.1%	45.1%	.015**
Other non-contact	1.5%	0.4%	.023**
Base	*2081*	*2157*	
Any appointment	Control	Treatment	P-value
No	67.9%	61.9%	.005**
Yes	32.1%	38.1%	.005**
Base	*2081*	*2157*	

Sample profile
The possible impact of the intervention on the profile of the achieved sample was also examined. The differences between the treatment and control samples on age, sex, household size and highest level of education were compared. There were no significant differences between the groups in terms of sex and household size.

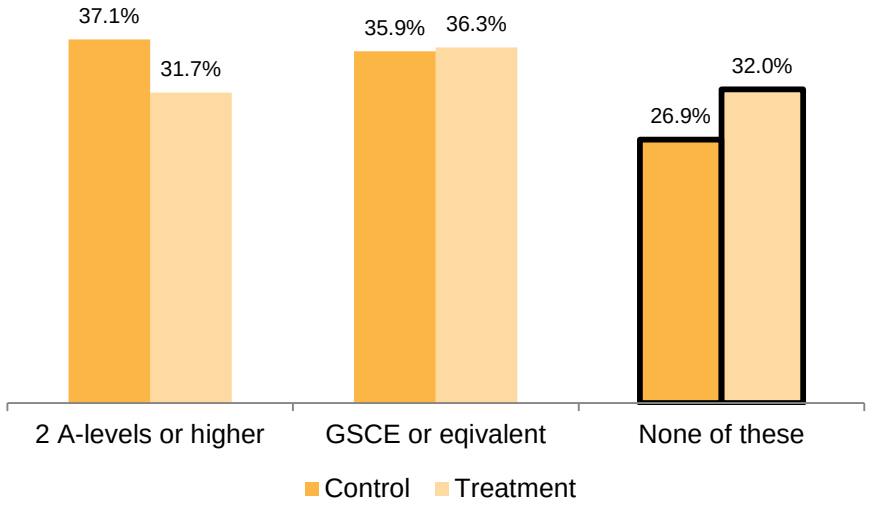
Statistically significant differences in the age and educational profile of the two groups were measured, as shown in Figure 0:3 and Figure 0:4. In the treatment group those who took part in the survey were more likely to be aged under-35 (p=0.06) and to have no qualifications (p=0.03).

Figure 0:3 Age profile: control and treatment groups



Base: (Control 834 | Treatment 973)

Figure 0:4 Educational profile: control and treatment groups



Base: (Control 824| Treatment 964)

Conclusions

SMS reminders are a promising intervention for improving response rates on random probability surveys. In this trial the treatment group achieved a response rate 5 percentage points higher than the control. This difference was statistically significant. However, this trial provided no evidence that this difference was caused by the mechanism anticipated; an increase in completed appointments. The sample size for calls where appointments were made at the previous call is relatively small (1,697), so a larger sample may provide a more nuanced picture of this.

Our examination of the call-level data demonstrates that the increase in response rate observed here was likely caused by an effect on interviewer behaviour. Interviewers in the treatment group were significantly more likely to secure appointments with participants at the first call at an address (by three and a half percentage points). There was no evidence that outcomes at subsequent calls were different in the treatment and control groups, whether an appointment was made or not at the previous call. The difference was made during the first call to addresses. Our working theory is that the briefing on the SMS experiment put appointment-making front-of-mind for interviewers. Securing appointments is evidently an effective method for achieving productive interviews.

The experiment also provided evidence that the use of SMS appointment reminders was beneficial for the sample profile. The responding cases in the treatment group were more likely to be aged under-35 and have no formal qualifications.

Questions for discussion

1. If SMS reminders did cause this increase in response, what was the mechanism?
2. Can the results be replicated on other cross-sectional surveys?
3. If increasing interviewer focus on appointment-making increases response, what other interventions can be developed to accomplish this?