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A randomized trial of electronic reminders showed a reduction in the time to respond to postal questionnaires

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Abstract

Objective: To assess the effect of electronic reminders (ERs) on response rate and time to response for the return of postal questionnaires.

Study Design and Setting: This open randomized controlled trial (RCT) was conducted at the University of York. Participants who were taking part in an established RCT and who provided an electronic mail address and/or mobile telephone number were eligible to take part in the study. The intervention group received ERs on the day they were expected to receive postal questionnaires.

Results: One hundred forty-eight participants (19 male and 129 female) aged 47 ± 11 (range, 19−65) years were studied. About 89.2% of participants returned postal questionnaires. There was no difference in questionnaire response rates in control (64 of 74 [86.5%]) vs. intervention (68 of 74 [91.9%]), groups (relative risk = 1.063, 95% confidence interval: 0.949−1.189). Median questionnaire time to response was 4 days less in the intervention group (10.0 ± 0.2; range, 10−14 days) compared with the control group (14.0 ± 1.4; range, 10−23 days) ($\chi^2_{1df} = 5.27$, $P = 0.022$).

Conclusion: ERs are useful tools for reducing participant time to response for postal questionnaires. We found little evidence for an effect of ERs on response rate for postal questionnaires.

Keywords: Questionnaires; Reminder systems; Randomized controlled trial; Respondents; Data collection; Communication

1. Introduction

Postal questionnaires are commonly used tools for collecting patient data in health services research [1]. This method is comparatively inexpensive, faster to administer, and less prone to bias in comparison to collecting data via interview; this method can also be used to reach large number of participants who may be widely distributed throughout a geographic area [1−3]. One of the major drawbacks of this method of data collection is the failure of participants to return postal questionnaires. Participant nonresponse to self-completed postal questionnaires may jeopardize study validity by introducing bias and reducing effective sample size [4,5]. It is therefore important to identify methods that may improve questionnaire response rates.

A Cochrane review [6] of randomized controlled trials (RCTs) identified 98 methods, which may improve questionnaire response rates. Among the methods identified, follow-up contact was found to enhance response rate to postal questionnaires. Likewise, a systematic review that assessed methods to increase response rate to postal questionnaires, specifically in health services research, found that the reminder systems, such as telephone and mail reminders, were the most effective means for improving questionnaire response rate in comparison to other methods such as monetary incentives [2].

With a range of widely available new communication technologies, such as electronic mail (e-mail) and mobile telephone text message (short message service, SMS), it would be of benefit to identify whether such electronic reminders (ERs) could be implemented in a trial setting to improve participant response to self-completed postal questionnaires. In an ongoing update of relevant Cochrane systematic reviews, only one randomized trial using ERs was found [6]. Virtanen et al. [7] used SMS reminders in the context of three postal surveys of individuals living in rural communities who were of working age, welfare and health care personnel, and trade union members within Finland. SMS reminders were found to increase survey response rates in comparison to traditional postal reminders. There

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What is new?

- Electronic reminders (ERs) reduce the time to response but have little effect on response rate for postal questionnaires.
- ERs are a simple method, which may be easily implemented into a trial setting to increase participant time to response for postal questionnaires.
- Participant nonresponse to postal questionnaires threaten study validity.
- Follow-up contact and reminder systems have been identified as methods that can improve participant nonresponse.
- ERs may improve questionnaire response rate and time to response, although this method remains largely unexplored.

are no studies that have investigated the effectiveness of ERs, such as e-mail and SMS on questionnaire response rate and time to response for the return of self-completed postal questionnaires within the context of improving response rates to questionnaires sent out in a randomized trial. Therefore, the purpose of this study was to investigate whether sending ERs to study participants would have an effect on questionnaire response rate and time to response. We hypothesized that participants randomized to be sent an ER would have higher response rates and a reduced time to response for the return of postal questionnaires, in comparison to controls, who would not receive an ER.

2. Methods

2.1. Participants

A subgroup of participants who were taking part in an RCT investigating the effect of a food elimination diet based on the enzyme-linked immunosorbent assay (ELISA) test for food sensitivity for the prevention of migraine was studied. Participants were recruited via convenience sampling from local media and through advertisement in the Migraine Action Association and Food Intolerance Awareness newsletters. The recruitment drive for the study occurred between April and May 2008. All potential participants who expressed an interest in the study were sent a screening questionnaire to determine eligibility into the study; a total of 174 participants were deemed eligible for inclusion within the migraine trial. These participants were assessed for eligibility into the current trial. Participants were included if they had provided an e-mail address or mobile telephone number for sending ERs as an e-mail or SMS text message; those who did not provide such information were not eligible for inclusion within the present study.

2.2. Randomization

Participants were assigned a unique study identification (ID) number. Randomly generated numbers were used to list all participants by ID number who had provided a mobile telephone number and/or an e-mail address. The first half of participants contained within this list (74 of 148) were allocated to the intervention group, whereas the remaining participants (74 of 148) were allocated to the control group. An independent data manager (B.C.) at the York Trials Unit was responsible for generating the allocation sequence and assigning participants into intervention and control groups.

2.3. Outcome measures

The primary outcome measure used in this study was questionnaire response rate, which was defined as the proportion of questionnaires returned by participants. The secondary outcome measure for this study was time to response. This was defined as the number of days, which had elapsed between the questionnaire being mailed out to participants and the questionnaire recorded as being returned to York Trials Unit.

2.4. Intervention

Participants were sent a study questionnaire 4 weeks into the study (20th October, 1998). This was a short, two-page, double-sided questionnaire, which contained the HIT-6 (Version 1.1) (Headache Impact Test, Quality Metric Inc. Lincoln, RI, USA) and Migraine Disability Assessment Test [8] questionnaires, which are used to measure the impact headaches have on a participant's life. The questionnaire was to be self-completed by participants.

A return date was located on the front page of all questionnaires sent out to participants. Participants in the intervention group were sent an ER in the form of an SMS text message, e-mail message, or both SMS text message and e-mail, depending on whether participants had provided an e-mail address and/or mobile telephone number. The SMS text message read ''You should have a new diary and a questionnaire by now. The questionnaire is important so please send it back with your first diary asap. Thanks.'' The content of the e-mail reminder was ''Hi, Thank you for taking part in the Migraine study. This is an automatic reminder. You should have received your 4-week questionnaire by today and your second diary. It is important that we receive your first diary and your 4-week questionnaire back to us as soon as possible. Therefore, if you have not already sent us your questionnaire and first diary please could you do so as soon as possible. Thank you.'' The control group did not receive any ERs.