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## **MIXED CONTACT METHODS TO IMPROVE RESPONSE TO A POSTAL QUESTIONNAIRE**

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## **Abstract**

**Background** Postal questionnaires remain an important method of collecting data in trials. However, a high non-response rate can lead to biases, which may undermine the validity of the study.

**Aim** We describe a simple method of improving response rates in an occupational health trial evaluating an intervention to prevent hand dermatitis in nurses.

**Methods** The trial employed questionnaires at t=0, t=1 month and t=12 months. The t=1 month questionnaire was posted to study participants (student and intensive care nurses) together with a free postage reply envelope. After two weeks an email was sent to non-responders reinforcing the need for completed questionnaires to be returned. Two weeks later non-responders were sent another hard copy of the questionnaire, along with an accompanying letter. Six weeks after posting the initial questionnaires non-responders were sent a short message service (SMS) text message or were telephoned to remind them to return the questionnaire.

**Results** The response rates for the 744 student nurses were 8% (no reminder), 27% (after first reminder), 22% (after second reminder) and 27% (after the third reminder) resulting in a response rate of 63%. The response rates for the 959 intensive care nurses were 9% (no reminder), 24% (after first reminder), 24% (after second reminder) and 31% (after third reminder) resulting in a final response rate of 63%.

**Conclusion** We found that a series of regular reminders including a third, personalised reminder by SMS text or telephone had a positive impact on non-responders.

**Key Words:** responses rates, occupational health, trials, nurses, students,

## **Introduction**

Postal questionnaires are often used in studies that are conducted across geographically dispersed areas as they are relatively inexpensive and not dependent upon recipient's use of technology. A challenge when employing postal questionnaires is attaining a good response rate (RR). A poor RR can impact on a study's statistical power and introduce non-responder bias. Two Cochrane reviews have explored methods of improving RR to questionnaires (1, 2). The evidence supports the use of monetary incentives; however, in large studies this can prove too costly to be practical. Other methods include email, telephone or written reminders (3). This paper explores the effect on participants' RR of sending a first reminder to complete a study questionnaire by email, the second reminder by post and the third, personalised reminder by SMS text or telephone.

## **Methods**

The skin care intervention in nurses trial is a cluster randomised controlled trial (4), which aims to assess the effectiveness of a complex intervention in reducing the incidence of hand dermatitis

among student and intensive care unit (ICU) nurses in the United Kingdom. Thirty-five NHS trusts/health boards/universities are participating and are responsible for recruiting and collecting data from participants. Participants were invited to complete three questionnaires during the study: at the time of recruitment (Questionnaire A), two weeks after implementation of the intervention (or at a similar time point at control sites) (questionnaire B) and at the end of the study (questionnaire C). Questionnaires A and C were given to and collected from participants by the fieldworkers, therefore only questionnaire B was posted to them (with a free postage reply envelope). Non-responders were sent an email reminder two-weeks after questionnaire B had been posted (using the email address provided on their consent form). At four weeks, non-responders were posted another hard copy of the questionnaire with another pre-paid postage envelope and an accompanying letter reminding them of the importance of returning the questionnaire. At six weeks non-responders were sent a SMS text message reminder. In the absence of a mobile number, participants were contacted via telephone. The participant information leaflet stated that participants who completed and returned all three study questionnaires would be entered into a raffle, in which 26 cameras that were used for the collection of photographic images during the trial would be given as prizes. This information was also contained in each of the reminder messages for questionnaire B. Ethics approval was granted by National Research Ethics Service Committee.

## **Results**

In total, 2043 nurses participated in the trial. For this analysis we excluded those who: withdrew from the study before the time point for sending out questionnaire B (n=9); did not provide a valid postal address (n=158); did not receive all three reminders (e.g. incorrect telephone number provided) or we were unable to ascertain if all the reminders had been sent (n=59); were not provided with an opportunity to complete the questionnaire (n=1) and those where the exact dates of sending questionnaire B or subsequent reminders were unclear (n=113). The total number of participants, after exclusions, were 1703, (744 student and 959 ICU nurses).

Student nurses had a mean age of 26 years and were recruited from 17 sites. 94% were female and 6% male. ICU nurses had a mean age of 38 years and were recruited from 30 sites. 85% were female and 15% male. 74 % of ICU nurses and 82% of student nurses supplied their mobile telephone number at recruitment for the purpose of sending SMS reminders

The RR to questionnaire B in both participant groups are illustrated in tables 1 and the cumulative RR in Figure 1. The final RR in both study groups was 63%. The results also highlighted large variability in the response rate across different sites (results not provided).

## **Discussion**

Our results illustrate the importance of the third, personalised reminder in increasing the RR of the postal questionnaires in this study. In the absence of the third reminders, the mean RR was 47% and 48% for the student and ICU nurses respectively. After the third reminder this increased to 63% for both groups. Our study is descriptive and we do not know what the final response would have been had we not sent out the third SMS text or telephone reminder. However, others have shown that personal contact such as telephone reminders are a cost-effective method of increasing RR to postal questionnaires, particularly in women (5), of which the majority of our study participants were. Likewise it is known that the use of SMS text messaging by a mobile phone has a small but positive effect on RR (6, 7). RR to postal surveys of healthcare professionals have declined over the last fifteen years (8, 9). In a meta-analysis of 48 studies, Cho found the mean RR in nurses to be 51% compared to 55% in physicians and 46% in other health professionals (8). Our RR of 63% compares favourably with these results although we were unable to explain the wide range in RR in different centres. It is known that nurses' individual attitudes and knowledge of research may influence RR (6). It is possible that nurses in some centres had better knowledge of research than others.

Our approach appeared to be effective for the student nurses and the ICU nurses. A drawback was that it was incumbent upon local field workers to ensure participants provided full contact details including a mobile telephone number when completing the baseline questionnaire. Some participants may not have wished to give us their mobile phone number or may not have had one. In addition, it is difficult to know that extent to which leaving a voicemail message as opposed to speaking with participants directly may have played a role in motivating participants to return of the questionnaire. At a time when surveys involving healthcare workers are characterised by low and declining RR (8), we

consider that sending a third reminder by SMS text or via a brief telephone call is a low-cost and effective method of improving RR to questionnaires in nurses.

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### **Key Points**

- 1) In a national multicentre occupational health trial in which data was collected by postal questionnaire, a third reminder to non-responders via personal SMS text messages or telephone contact was found to be effective in improving response rates among nurse participants.
- 2) This method could be considered in other studies of healthcare workers which employ postal questionnaires.
- 3) Despite falling response rates to postal questionnaires in health professionals, it is possible to achieve response rates of 63% in nurses.

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