

Telephone versus postal surveys of general practitioners: methodological considerations

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SUMMARY

Background. High response rates to surveys help to maintain the representativeness of the sample.

Aim. In the course of a wider investigation into counselling services within general practice it was decided to assess the feasibility of increasing the response rate by telephone follow up of non-respondents to a postal survey.

Method. A postal survey was undertaken of a random sample of 1732 general practitioners followed by telephone administration of the questionnaire to non-respondents. The identical questionnaire was administered by telephone to a separate random sample of 206 general practitioners.

Results. Of 1732 general practitioners first approached by mail, 1683 were still in post of whom 881 (52%) completed the postal questionnaire and a further 494 (29%) the telephone interview. Of 206 general practitioners first contacted by telephone, 197 were still in post of whom 167 (85%) completed interviews. Compared with doctors first approached by mail, those first approached by telephone were significantly more likely to report having a partner with a special interest in psychiatry ($P < 0.01$); and a general practitioner, practice nurse or health visitor who worked as a counsellor ($P < 0.01$ in each case). A comparison of doctors first approached by telephone with those who completed telephone interviews after failing to respond to the postal questionnaire showed that postal non-respondents were significantly less likely to report having a general practitioner, practice nurse, health visitor or community psychiatric nurse who worked as a counsellor ($P < 0.01$ in each case).

Conclusion. These findings suggest that non-response to the postal survey was associated with lack of activity in the study area. Telephone administration of questionnaires to postal non-respondents increased response rates to above 80% but, as telephone administration enhanced the reporting of counsellors, a social desirability bias may have been introduced.

Keywords: survey design; research methodology; postal questionnaires; telephone interviews.

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Introduction

THE postal questionnaire survey is a valuable research tool which can be rendered worthless by a low response rate. The level of response which is acceptable depends on whether respondents and non-respondents differ in respect of the outcome under study. Since this is not usually known, investigators make inferences about the likely non-response bias by comparing the known characteristics of respondents and non-respondents. The acceptability of a response rate is therefore determined afterwards and may differ according to the aims of the study. The only clear principle guiding investigators at the outset is that response rates should be maximized in order to minimize the magnitude of any non-response bias. High response rates help to maintain the representativeness of a sample and so permit inferences to be drawn from the study group to the whole population.

Previous research suggests that the most important factors influencing total response are: perceived relevance of questionnaire; number of approaches; use of a different method for the third approach; investigating agency; type of population surveyed; and questionnaire length. These factors have been found to explain more than 90% of the variance in response rate in American postal surveys.^{1,2}

Low response rates are a particular problem in postal surveys of general practitioners in the United Kingdom. A review of the *British Journal of General Practice* for the period January 1991 to June 1993 inclusive revealed 26 original papers in which British general practitioners had been surveyed. The mean response rate was 61%; nine studies had rates below 60% and five had rates of 80% or higher. The true situation is probably much worse because surveys with low response rates are less likely to be accepted for publication. There is therefore considerable interest in developing survey methods which will improve response without adding prohibitively to costs.

Attention was focused on the feasibility of increasing response by administering questionnaires by telephone to those general practitioners who had failed to respond to identical questionnaires administered by post. To be valuable this approach would need to be both cost effective and free from bias associated with differences in the mode of questionnaire administration. If the answers elicited to identical questions differed with the mode of questionnaire administration, then telephone interviews could not be used as a supplement to postal questionnaires.

The opportunity of investigating these methodological issues arose in a larger investigation into the nature and distribution of counselling services in English and Welsh general practices.³ The aims were to describe and compare the response rates associated with a questionnaire survey conducted by post alone, by telephone alone, and by post with telephone follow up of non-respondents; to investigate whether there were differences in questionnaire answers related to the mode of questionnaire administration; and to describe the practice characteristics of general practitioners who respond to telephone, but not postal, administration of a questionnaire. The costs of the different methods of questionnaire administration were also estimated.

Method

Sample

The study group consisted of an approximately one in 20 sample

of general practitioners in England and Wales, stratified by family health services authority area and partnership size. General practitioners were identified from records held centrally by the Department of Health which was asked to select at random seven single-handed doctors, seven doctors from partnerships of two or three, and 20 doctors from partnerships of four or more for each family health services authority. A random sample of 57 of the 98 family health services authorities was selected for inclusion in this investigation. From this population of 1938 general practitioners a random sample of 206 were selected who were first approached by telephone, leaving 1732 who were first approached by post.

Administration of questionnaires

The doctors selected for postal survey were mailed the questionnaire together with a prepaid reply envelope. Non-respondents were sent up to two further reminders plus questionnaires. Doctors who had still not responded, together with those selected for first approach by telephone, were contacted by telephone. Telephone interviewers were not 'blind' as to which of these two groups a general practitioner belonged. First approach telephone interviews were staggered so that they spanned the same months as the postal questionnaire survey and telephone interviews with non-respondents.

It was usually necessary to place at least two telephone calls to the practice simply to establish contact with the doctor and arrange a suitable time for interview. Doctors were most likely to be available in the mornings after 11.30 hours and the afternoons after 16.00 hours. Interviewers were advised to give their name and state that they were ringing on behalf of the Department of General Practice at St George's Hospital Medical School. They stated that they wished to speak with the doctor on a matter of business which was not related to the care of an individual patient. Interviewers avoided using the word research because, in initial contacts with practices, a number of receptionists said they had been instructed to discourage such calls. Where interviewers were successful in making contact with doctors, it was unusual for the doctors to decline to assist.

Interviewers were instructed to read the question and response categories exactly as written in the postal questionnaire. When a general practitioner requested further information or explanation, interviewers read the question again slowly but offered no comment or additional information. If the doctor was still unable to respond the answer was coded as 'missing' and the interviewer moved to the next question. With the permission of the doctor, interviews were tape recorded and the tapes reviewed by D B to ensure that each was conducted in accordance with these guidelines.

Questionnaire

The questionnaire was confidential, but not anonymous, and covered a range of practice characteristics including partnership size and patient list size. The questionnaire also asked for information about psychiatric, psychological, and counselling services currently available on site; and for those with counsellors, basic information about the counsellors. All questions were closed with fixed response categories which included the option 'other' for answers not encompassed by the choices listed.

There is no consensus as to the definition of a counsellor. In this study, general practitioners were asked whether there was a person working on site or within the practice who fulfilled the following definition:

'Someone who offers (formal) sessions to patients in which patients are helped to define their problems and enabled to

reach their own solutions. GPs and others provide counselling in the ordinary course of their work, but we need to know about the provision of counselling as a distinct or separate activity within the practice.'

The questionnaire was four pages long and contained two additional pages to be completed for each counsellor within the practice. The questionnaire took 10–15 minutes to complete, according to the numbers of counsellors working on site, whether it was administered by post or by telephone.

Analysis

The differences in outcomes between postal and telephone administration were identified by comparing doctors first approached by telephone with doctors first approached by post (this is, postal questionnaire respondents plus telephone respondents who had failed to complete postal questionnaires). This intention to treat analysis provided a conservative estimate of the differences in outcome attributable to telephone as opposed to postal administration.

The characteristics of doctors who failed to respond to postal questionnaires were identified by comparing doctors first approached by telephone with doctors approached by telephone after they had failed to complete postal questionnaires. As the mode of data acquisition (that is, telephone) is the same in both groups, the only systematic differences between them could be attributed to the fact that the latter group failed to respond to postal questionnaires.

Statistics

Data were entered onto computer and analysed using *SPSS/PC+*. For each analysis, the significance of the difference between groups was assessed using chi square. Given the large number of comparisons, only those findings whose level of significance reached $P < 0.01$ are reported, thereby excluding findings of marginal significance which may have arisen by chance alone.

Results

Of the 1732 general practitioners contacted initially by mail, 49 had died, retired or moved. Of the 1683 presumed still to be in post, 881 (52.3%) completed the postal questionnaire and a further 494 (29.4%) completed the telephone interview. Of the 206 general practitioners contacted initially by telephone, nine had died, retired, or moved. Of the 197 presumed still to be in post, 167 (84.8%) completed the interview. In total, usable questionnaires were obtained from 1542 of the 1880 doctors who were eligible to take part (82.0%).

Doctors first approached by post were compared with those first approached by telephone. No significant differences were found in doctors' practice characteristics. However, doctors first approached by telephone were significantly more likely to report having a general practitioner, practice nurse or health visitor working on site who fulfilled the study definition of a counsellor (Table 1). They were also more likely to report having at least one partner with a special interest in psychiatry.

The practice characteristics of doctors who responded to telephone, but not postal, administration of the questionnaire were identified by comparing doctors first approached by telephone with those who completed telephone interviews after failing to respond to postal questionnaires. There were no significant differences between groups in doctors' practice characteristics. However postal non-respondents were significantly less likely to report having a general practitioner, practice nurse, health visitor or community psychiatric nurse working on site who fulfilled the study definition of a counsellor (Table 1).

Table 1. Staff working in the practice as counsellors, and partners with a special interest in psychiatry, as reported by respondents first approached by post and by telephone, and by doctors initially failing to respond to the postal questionnaire who then completed the telephone interview.

Presence of:	% of GP respondents first approached by		
	Post		
	Total (n=1375)	Completing phone interview but not postal questionnaire (n=494)	Telephone (n=167)
<i>Counsellors</i>			
GP	19.2 **	13.2 **	35.9
Practice nurse	14.1 **	9.7 **	29.9
Health visitor	11.2 **	8.3 **	22.2
CPN	19.6	15.2 **	25.7
Practice counsellor	13.5	15.2	14.4
Clinical psychologist	8.6	7.9	13.8
<i>Partner with special interest in psychiatry</i>	44.7 **	50.8	58.1

n = number of respondents in group. CPN= community psychiatric nurse. χ^2 for comparison with respondents initially approached by telephone: ** P<0.01.

As the mode of questionnaire administration influenced the reported prevalence of counsellors, it was necessary to reconsider the definition of a counsellor. Interviewers judged that general practitioners were not always careful to distinguish between counselling skills employed within routine clinical work and counselling provided as a separate or distinct activity. An attempt was made to minimize this bias by excluding counsellors who were reported to have other jobs within the practice. With the addition of this exclusion criterion, there were no significant differences between doctors first approached by post and those first approached by telephone in the reported prevalence of counsellors (Table 2).

The cost of obtaining a completed questionnaire by post was estimated to be approximately £2.11 for consumables and £0.69 for staff giving a total of £2.70. The cost of obtaining a completed telephone interview among general practitioners who failed to respond to the postal questionnaire was estimated to be approximately £4.88 for consumables and £5.96 for staff giving a total of £10.84. The cost of obtaining a completed interview among general practitioners who were first approached by telephone was estimated to be £4.31 for consumables and £6.13 for staff giving a total of £10.44.

Table 2. Prevalence of counsellors with no other job in the practice, as reported by doctors initially approached by post and by telephone.

Presence of:	% of GP respondents first approached by	
	Post (n=1375)	Telephone (n=167)
<i>Counsellors</i>		
CPN	11.3	15.0
Practice counsellor	8.4	10.8
Clinical psychologist	5.8	9.0
Others	4.7	6.0

n = number of respondents in group. CPN=community psychiatric nurse.

Discussion

The relative merits of telephone, face-to-face, and postal questionnaires have been rehearsed.⁴ Interview methods make it possible to explore issues in greater depth, and they generally achieve higher response rates than do postal questionnaires. These advantages are, however, offset by the higher costs and the greater potential for investigator bias.

In this study the costs of obtaining a completed questionnaire by telephone were approximately four times higher than by post. Telephone costs will vary with the geography of the target population and were necessarily high in this nationally distributed sample. However, as staff costs accounted for more than half the total cost of a completed telephone interview, the potential for saving by studying local populations is limited. It therefore makes sense to secure the bulk of the data using postal survey methods and top up response rates where necessary using telephone surveys. In this study, a 52% response rate was achieved using postal survey methods alone and this was increased to 82% by conducting telephone interviews with postal survey non-respondents.

The benefits of achieving a higher response will be diminished if the mode of questionnaire application affects response by, for example, producing more socially desirable responses. Previous studies have suggested that, while responses do differ with the mode of application, interviews do not consistently produce more (or fewer) socially desirable responses than postal methods.^{5,6} The findings of the present study, however, suggest that responses elicited by telephone were more susceptible to social desirability bias than those elicited by post.

Doctors first approached by telephone were more likely than those first approached by post to report having a counsellor and at least one partner with an interest in psychiatry. The excess of counsellors was confined to clinical staff normally working within practices (for example, practice nurses and health visitors). Telephone respondents did not claim, for example, to have significantly more on site mental health professionals such as clinical psychologists. Indeed, when analysis was restricted to counsellors who had no other job in the practice, no significant differences were found between telephone and postal questionnaire respondents in the prevalence of on site counsellors. This suggests that doctors may have sought to please the interviewer by overstating practice interest and activity in response to those questions which called for judgement rather than fact.

The question as to which mode of questionnaire administration has the greater validity can be answered only by reference to a separate gold standard. In this study, for example, the gold standard might have been direct observation by investigators of the work of on site staff: such a validation was beyond the study's resources. However, if we are correct in believing that telephone interviews were more subject to social desirability bias, then we must conclude that postal questionnaires had the greater validity in this study. The same may not be true for other topics of investigation. Indeed, research suggests that, in most cases, the nature of responses differs little between face-to-face, telephone and postal administration of questionnaires.^{5,6}

Doctors who failed to respond to the postal survey questionnaire were less likely than others to have an on-site counsellor. There were no significant differences between respondents and non-respondents in any other characteristics of the practice. This supports previous research in suggesting that the perceived relevance of the questionnaire is among the most important factors influencing response rate.^{1,2} Doctors without counsellors might well have been less interested in the subject and so less likely to respond. The nature of the non-response bias has important implications for the interpretation of results. If the doctors who are least active in the chosen field of study preferentially decline

to participate, surveys will tend to overestimate the true prevalence of the activity under investigation.

A principal aim of the present study was to establish the prevalence of counselling services on site within general practices. It was therefore essential to have both a high response rate and a definition of counsellor which was not influenced by the mode of questionnaire administration. Telephone administration of questionnaires to postal non-respondents proved effective in securing the desired response rate of 80%. By restricting the analysis to persons reported to fulfil the study definition of a counsellor and who had no other job within the practice, there was no significant bias associated with the mode of questionnaire administration. Other investigators may find these experiences valuable in their work.

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