

Surveying general practitioners: does a low response rate matter?

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SUMMARY

Background. Primary care has long been of interest to policy research. Recently, there is evidence to suggest that it is becoming more difficult to encourage GPs (general practitioners) to participate in surveys. As low response rates can introduce bias into survey results, it is important to study the effects of non-response.

Aim. To assess the validity of a response rate of 44% obtained in a national postal study of GPs surveyed about their work with alcohol-misusing patients by assessing the extent of any non-response bias.

Method. A telephone survey of 148 GPs who had not responded to repeated mailings of a postal questionnaire was undertaken. In addition to personal and practice structure characteristics, the GPs were asked three questions taken from the original questionnaire about their work with alcohol-misusing patients.

Results. Of the 148 GPs telephoned, 64 responded to the telephone questionnaire in full; all had previously failed to respond to the postal questionnaire. Younger GPs were more likely to respond to both the national postal and telephone surveys, but more so to the latter. Telephone responders were more likely to be GPs in a single-handed practice. The work of GPs with alcohol-misusing patients highlighted differences between the two response groups. Male telephone responders were found to be identifying a significantly higher average of alcohol misusers than male postal responders. Telephone responders were more likely to feel trained in treating alcohol misuse and to feel better supported to deal with this patient group.

Conclusion. Some significant differences were identified, indicating the presence of non-response bias. A low response rate need not affect the validity of the data collected, but it is still necessary to test for non-response effects and make corrections to the original data in order to maximize validity.

Keywords: questionnaire; alcohol misuse; survey; response rates.

Introduction

RECENT changes within primary care, most notably the 1990 general practitioner contract and the *Health of the Nation* report, have led to an increased emphasis on the role of GPs in

health promotion. Such changes have highlighted the importance of research into the behaviour and attitudes of GPs. If such research is to be utilized effectively by policy makers, it is vital that it follows scientific guidelines to maximize its validity.

Low response rates can introduce bias into survey results,¹⁻⁵ and are a particular problem with postal surveys of GPs.^{6,7} Previous studies have found few differences between groups of responding and non-responding GPs, particularly when demographic characteristics are examined.^{6,8,9} This suggests that a high response rate need not necessarily be a prerequisite of a valid survey,^{10,11} and efforts made to increase the response rate may not always result in data that are any more representative of the sampled population.^{6,10}

In 1994, a national postal survey of a one in five sample (5460) of all GPs in England and Wales was conducted¹² to examine their involvement and attitudes towards identifying and dealing with alcohol-misusing patients. The study method was modified after the second mailing because of the low response rate¹³ and, after four mailings,¹² eventually resulted in an overall response rate of 44%. As the response rate was still low, a small-scale study was undertaken that explored the extent of non-response bias among the non-responders. This paper is an account of the methods used and the results of this study.

Method

The sample

The study sample for this paper was drawn from the 2884 non-responders to the national postal survey, from which a random sample of 180 GPs was selected. Data had already been obtained from the Department of Health for the original national postal sample on the personal and practice structure characteristics of the 20% random sample of all GPs throughout England and Wales. The primary characteristic influencing postal non-response was age, with non-responders more likely to be older. Consequently, age was used as a stratification factor for selecting the telephone interview sample, which was otherwise at random.

The interview schedule

A short, structured telephone interview was chosen as a means of accessing GPs because it has been recognized as an efficient tool for chasing non-responders.^{2,14} The interview schedule collected data on practice characteristics (number of partners, practice nurses and patients, health promotion banding level and practice policy to identify alcohol misusers) and additionally asked GPs three questions taken from the original postal questionnaire relating to work with alcohol misusers. Non-response has previously been found to be associated with lack of activity in the area under investigation.⁷ In this study, it was the work of non-responding GPs with alcohol-misusing patients that was of interest, although we were reliant (in both the postal and telephone surveys) on the accuracy of self-report by the responding GPs. Information was also sought on GPs' opinions of alcohol misuse training and the support they received from local alcohol services, as both variables had been found to be predictive of negative attitudes in the postal survey.¹²

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The interviews

Accessing the GPs and persuading them to complete the interview was problematic, as has been found by others;^{4,10} telephone interviews meant the study could be implemented directly from the workplace and the GP could be called back whenever they were available. Even if a GP spoke to the interviewer, a response was not guaranteed, but once a respondent actually consented to the interview it was completed without any further difficulty, as observed in other surveys.^{4,7} These interviews were defined as 'full responses'. If a GP did refuse to participate, it was often possible for the interviewer to speak to someone else in the practice to collect information on practice structure. This was defined as a 'partial response'.

Analysis

The data were analysed using SPSS and two statistical tests. The chi-square test of significance between groups and the *t*-test comparison of means were performed on unweighted data, sampling design weights being unnecessary in this comparison exercise. The analysis of the data by sex is hampered by the low number of women responding to the telephone survey.

Results

Effectiveness of the telephone survey approach

Response. The original sample for the telephone study consisted of 180 GPs who had failed to respond to four mailing waves. A telephone number could not be obtained for 17 of them. A further 15 had left or retired from the practice or were on sick or maternity leave; this gave a valid sample of 148 GPs. An overall response rate of 68% was obtained (64 full responders and 36 partial responders). Only 43% of the sample of 148 GPs completed the interview in full (64 respondents).

A total of 547 calls were made to obtain 64 full responses (mean = 3.8) and 36 partial responses (mean = 4.4). There were 34 telephone continuous non-responders (mean = 4.3). The remaining 14 GPs proved uncontactable (mean = 6.8). Telephone calls (16 to one practice) were made until it was apparent that no further calls would elicit a response of any sort.

Comparison of telephone responders with postal responders

Personal characteristics. In both studies (the four-wave postal survey and the telephone survey), 43% of men responded. The national postal survey had been slightly more likely to have success targeting women, with 45% of those contacted responding compared with 43% in the telephone study.

The average age of a responding GP in both studies was 43 years. In both surveys, younger GPs were more likely to respond than GPs in the other two age groups (Table 1), but this trend was greater among telephone full responders. The telephone study was also less likely to reach those in the oldest age group.

Younger telephone full responders needed marginally more telephone calls than GPs in the other two age groups before they consented to be interviewed (Table 1). Some non-response bias with regard to age was identified.

Practice structure characteristics. Practice structure characteristics for postal responders, telephone full responders and partial responders were compared, and few differences were identified. For all three groups, most GPs reported working in a practice with between two and five partners and with between 2 and 2.5 practice nurses. Telephone full responders (12.5%) were more likely to be single-handed GPs than postal responders (7%) or partial responders (6%), indicating the presence of slight non-response bias ($\chi^2 = 261.23$, $df = 3$, $P < 0.001$).

Postal responders had significantly larger practice list sizes (mean = 7330 patients) than either the telephone full responders ($t = 3.178$, $P = 0.001$) or the partial responders ($t = 2.201$, $P = 0.02$). This was largely because of the number of partners in the practice, which, when controlled for, leaves as significant only a small bias in practice list size in large partnerships, there was, with postal responders having slightly larger practices (mean = 11 339) than the telephone responders (mean = 9777, $t = -4.05$, $P = 0.0001$). For this analysis, the two groups of telephone responders were combined and the top 10% of each set of figures of practice list size data from all data sets was trimmed to allow for evident outliers. The majority of respondents in all three groups reported working for practices banded at health promotion level 3 (84% of postal responders, 83% of partial responders and 86% of telephone full responders), the level at which screening for alcohol consumption occurs. Most respondents in all groups reported having a practice policy of identifying alcohol misusers (78% of postal responders, 75% of telephone full responders and 78% of partial responders). In all response groups, a third of practices were fundholders.

Comparison of telephone and postal respondents' work with alcohol-misuse patients, and their attitudes towards training and support

Level of activity. Most (80%) postal responders reported seeing an average of 3.2 alcohol-misuse patients in the previous 4 weeks. Telephone full responders had seen an average of 4.5 alcohol misusers in this time, but this apparent increase was not significant ($t = 0.41$, $P < 0.3$). No significant age differences were found. Male telephone full responders identified a significantly higher average (5.2) of alcohol misusers than male postal responders (3.4) ($t = 1.64$, $P < 0.05$). Female postal responders reported seeing a higher average (2.6) of patients than female telephone full responders (1.6), but there are too few female (only 13) telephone full responders for this to be a reliable conclusion.

Perception of training in the treatment of alcohol misuse. In the national postal survey, alcohol-misuse training was found to be a significant predictor of negative attitudes towards alcohol misusers. Telephone full responders (Table 2) were significantly less likely than postal responders to say that they were uncertain

Table 1. Telephone full responders (n = 64), by age and average number of calls.

Age Group (years)	Number of GPs targeted in each age group	Number of responses in each age group	Number of responses in each age group, as a proportion of those targeted *	Average calls taken to gain a response in each age group	Range of calls taken to gain a response
<41	49	25	51.0% (47.4%)	4	1-11
41-50	57	25	43.9% (43.5%)	3.7	1-11
51+	42	14	33.3% (37.3%)	3.6	2-10

*The percentages in brackets refer to the same calculation performed on the postal responders.

about the statement, 'I feel adequately trained in the treatment of alcohol misuse' and more inclined to give an opinion, albeit positive or negative ($\chi^2 = 7.05$, $df = 1$, $P < 0.005$). Telephone full responders were also significantly more likely than postal responders to agree with the statement ($\chi^2 = 5.23$, $df = 1$, $P < 0.01$).

Male telephone full responders were more inclined than male postal responders to express an opinion in either direction on their alcohol-misuse training ($\chi^2 = 6.91$, $df = 1$, $P < 0.05$). They were significantly more inclined (49%) than male postal responders (26%) to feel trained in alcohol misuse ($\chi^2 = 6.69$, $df = 1$, $P < 0.05$). There were no significant differences among women, thereby making cross-sex comparisons difficult (this is also hampered by the small number of women in the telephone interview sample).

One group emerged showing significant differences when training was examined across the three age groups (Table 3). Most (93%) telephone full responders over 50 years of age were more inclined to have an opinion on their training. They were the only group of telephone full responders in which a higher proportion felt that they had not been adequately trained ($\chi^2 = 5.31$, $df = 1$, $P < 0.01$).

Perception of support to work with alcohol misusers. Telephone full responders (67%) were significantly more likely to feel supported by external alcohol services ($\chi^2 = 2.72$, $df = 1$, $P < 0.05$) than postal responders (57%). This trend is present for men ($\chi^2 = 3.31$, $df = 1$, $P < 0.05$), but again there are too few women in the sample for the trend to be measured reliably.

A 3 x 2 x 2 chi-square (log-linear analysis) test was performed on the data presented in Table 4. When the two surveys are compared, a difference in feeling adequately supported was identified ($\chi^2 = 2.01$, $df = 1$, $P < 0.2$). This difference stayed consistent across the three age groups ($\chi^2 = 3.2$, $df = 1$, $P < 0.1$). As a result, no non-response bias can be detected.

Discussion

The problem of encouraging GPs, particularly older GPs, to participate in the national postal survey emerged again in the telephone study. When these GPs do participate, they differ very little from the original postal responders (the analyses were performed on unweighted data with an excess of older, and therefore more reluctant GPs from the original sample). If such an age bias can

be predicted before the survey or before analysis begins, then the sampling strategy or the data analysis can be weighted accordingly to allow for the discrepancy. The difference in the overall level of response may be seen as merely differing with the various methods employed to access GPs rather than being a specific reluctance to respond to a postal questionnaire.

Few differences are seen when the practice structure characteristics of the two groups are compared. More telephone full responders were single-handed GPs. National Department of Health Data available for 1994¹⁵ indicate that this proportion is nearer to the national picture than that seen in the national postal survey.¹² Among partnerships of more than six GPs, postal responders were significantly more likely to have larger practice list sizes. If biases like these can be identified before choosing sampling strategy or conducting data analysis, non-response bias can be removed by reweighting the sample or the data. The increase may be an effect of the method of approach adopted for the telephone study, as single-handed GPs may be more likely to answer the telephone.

GPs often respond to surveys as a member of their professional group rather than as an individual member of society.¹¹ They are inundated with requests to complete questionnaires and they may select only those that interest them.^{4,9,16} The findings from the telephone study suggest that the telephone respondents are seeing more alcohol-misusing patients and also feel more adequately trained and supported to work with these patients. The demographic characteristics of non-responders to a questionnaire administered either by post or by telephone may not differ vastly from responders, but there may be differences in the responses given to issue-specific questions, in this case work with alcohol-misusing patients, where the respondents may be answering as members of a relatively homogeneous population. Older telephone full responders felt that they had not had sufficient alcohol-misuse training. A possible explanation for this may lie in the respondents who were uncertain about this issue. In the younger age groups, the proportions agreeing, disagreeing and being uncertain with the statement are consistent across both sur-

Table 2. Telephone full-responders and postal responders: response to attitude statement, 'I feel adequately trained in the treatment of alcohol misuse'.

	Agree (%)	Uncertain (%)	Disagree (%)
National postal survey (n=2362)	24	32	44
National telephone survey (n=64)	42	17	41

Table 4. Telephone full responders and postal responders: response to how adequately they feel supported by external alcohol services locally, by age.

Age group (years)	Adequate		Inadequate	
	Post (%)	Telephone (%)	Post (%)	Telephone (%)
<41*	59	72	41	28
41-50**	55	58	45	42
51+***	58	71	42	29
n	1318	42	994	21

*Post (n=1061); telephone (n=25). **Post (n=768); telephone (n=24).

Table 3. Telephone full responders and postal responders: response to attitude statement, 'I feel adequately trained in the treatment of alcohol misuse', by age.

Age group (years)	Agree		Uncertain		Disagree	
	Post (%)	Telephone (%)	Post (%)	Telephone (%)	Post (%)	Telephone (%)
<41*	26	44	29	20	45	36
41-50**	23	44	35	20	42	36
51+***	20	36	33	7	47	57
n	563	27	750	11	1048	7

*Post (n=1079); telephone (n=25). **Post (n=779); telephone (n=24). ***Post (n=503); telephone (n=14).

veys. However, the proportion of telephone full responders over 50 years of age who feel uncertain about their training is much lower, and, among telephone full responders, appears to manifest itself as increased disagreement with the statement. Other factors may be the source of such bias, such as the method of administration of the research instrument.

A representative sample is not necessarily guaranteed by a high response rate: it will always be necessary to check for non-response bias in postal surveys of GPs. Any bias identified can then be modified by statistical procedures. Small biases are often correctable by weighting procedures and may not be as problematic as they at first seem. If a bias is known or expected in a sample, then allowances can be made for it. In the light of the changes within primary care, it is essential that such factors are taken into consideration in future surveys of GPs. In an ideal world, every non-responder would be contacted to enable checks for bias to be made. Although this study has been limited by its small sample size, it has nonetheless been possible to identify bias in the original data set and has allowed the data collected from the national postal survey to be used to the maximum.

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