

A Comparison of Mail and Face-to-Face Survey Methods: New Zealand Health Professionals

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This study compares response rates obtained by two methods of data collection, mail survey and face-to-face interview, with health professionals. The study goes further by attempting to compare the quantity and quality of response derived from each data collection method as well as examining two potential sources of bias (acquiescence and social desirability) in the face-to-face interview data. A two page questionnaire was sent to 109 general surgeons and 34 district nurses. One reminder with another copy of the questionnaire was sent to non-respondents two weeks later. Forty-nine general surgeons and 39 district nurses were interviewed in person. General surgeons were just as likely to respond to either method of data collection; district nurses were more likely to respond to the face-to-face survey. Furthermore, the presence of an interviewer did not necessarily yield greater amounts of information, nor did our results show any conclusive difference in the quality of responses. While evidence of both acquiescence (primarily from hasty completion) and social desirability bias were detected in our results for general surgeons, neither was sufficiently large to provide conclusive evidence of an impact. We believe that our findings give some reassurance to researchers in the health industry that mail surveys of health professionals can produce results similar to those obtained by face-to-face interviews.

Keywords: mail survey, face to face, response rates, interviews, health professional

Introduction

Mail surveys and face-to-face interviews are long established methods of data collection, each with their own strengths and weaknesses. Various American commentators (for example, Shosteck & Fairweather 1979; Goyder 1985; Berry & Kanouse 1987; Ayidiya & McClendon 1990) have reported how mail surveys conducted in the 1970s received poor "press" from some American business texts because of low response rates. Not all American commentators were so critical (for example, Dillman 1972) but enough were to "sour" the image of mail surveys. Yet mail survey research is used extensively in the USA (see Table 1), and just as in New Zealand (Brennan 1992), response rates in excess of 60% are achievable (Baim 1991; Goyder 1985).

In the specific area of research with health professionals, Shosteck and Fairweather (1979) reviewed several studies conducted by mail with response rates ranging from 41% to 80%. They found that, comparatively, well conducted face-to-face interviews with physicians achieved higher response rates (65% to 80%) than mail surveys but the maximum response rate obtained (80%) was identical, suggesting that the form of contact per se may not be the main influence on differential response rates. Other factors, such as the research sponsor, the extent of the follow-up, questionnaire length and relevance of the topic may be more important.

The prospect of a higher response rate has been considered a decisive argument in favour of face-to-face interviews over mail surveys in New Zealand. Yet this argument may not hold for surveying health professionals. These respondents are widely believed to be a difficult population from which to collect survey data (Berry & Kanouse 1987) and personal

communications with New Zealand market researchers and health researchers (Garland 1993) confirm this belief. Yet not only is the reliance on American textbooks likely to favour face-to-face data collection, but also, market research companies in New Zealand tend to recruit and train their own interviewers and incur the costs of these ventures. The logical outcome is to use these interviewers at every opportunity to help recoup the investment on interviewer recruiting, training, supervision, motivation and retraining. Although no data exist on mail surveys' share of total "interviews" conducted by commercial research companies in New Zealand, less than five percent is probably a fair guess.

Aside from the question of response rates, there is also a debate on the quality of data obtained from mail surveys compared with face-to-face interviews. Advocates of face-to-face interviews assert that the depth and clarification of responses from such interviews, via skilful probing by interviewers, usually provides data better than those obtained from self completion methods (Ayidiya & McClendon 1990). While this claim is probably irrefutable, advocates of mail surveys can counter claim that mail survey respondents are not constrained by the serial order of questions or response categories. Respondents are free to read and answer questions at their own pace and can go back and change answers if they so wish (Schuman & Presser 1981; Ayidiya & McClendon 1990). Furthermore, face-to-face interviews can suffer from acquiescence and social desirability bias (see Schuman & Presser 1981; Converse & Presser 1986). Acquiescence covers those circumstances where respondents, when asked to record their level of agreement with a statement, will have a tendency to agree more, or look more favourably on that statement. As mail survey respondents have more time to weigh the issues carefully before responding, they should be less prone to acquiescence (Ayidiya & McClendon 1990). Similarly with social desirability; some respondents in an interview are reputed to not want to "displease" the interviewer with a response that might be regarded as socially unacceptable and so may answer more affirmatively than they would do in a self completion survey (Garland 1991; Gendall, Hoek & Blakeley 1992).

Table 1. Quantitative Data Collection: Interviews by Method 1987-1988

Method	France %	Germany %	UK %	USA %
Mail	19	22	17	40
Telephone	18	14	25	37
Central Location/Street	-	19	7	17
In home/work	63	45	51	6

Source: ESOMAR Annual Market Study cited in Baim (1991) page 117.

The authors' contention is that for health professionals, mail surveys may yield response rates similar to those obtained by face-to-face interviews at substantially reduced costs of data collection. Different methods and procedures can be used to encourage response to mail surveys, from pre-alert procedures to multiple follow-ups to appealing questionnaire design and skilfully written covering letters (Harvey 1987). A considerable wealth of research now exists in the New Zealand market showing mail survey response rates in excess of 60% (Brennan 1992).

This article presents the findings of a study that compares response rates obtained by two methods of data collection, mail survey and face-to-face interview, with health professionals. The study goes further by attempting to compare the quantity and quality of response derived from each data collection method as well as examining two potential sources of bias (acquiescence and social desirability) in the face-to-face interview data.

Method

The research topic was surgical dressings and we were able to accommodate methodological research in the study without compromising research design, timing or cost considerations. After preliminary discussions with medical personnel, two groups which see a wide range of wounds, general surgeons and district nurses, were chosen for study. General surgeons usually see their patients in hospitals or private practice, while district nurses see their patients in the community.

One hundred and fifty-seven general surgeons practising in New Zealand were identified from a list purchased from a listbroker, and the names of 77 district nurses working in the Greater Auckland area were obtained from their Association. For the authors' convenience and to minimise cost, all 49 general surgeons listed as living in the Auckland and Waikato areas were selected for face-to-face interviews; district nurses at each of the eight regional offices included in the sample population were assigned to face-to-face interview or mail survey by virtue of their presence at or absence from the office on the days assigned for interview. Forty three district nurses were "in the office" on the days assigned for personal interviews. Four refused to take part. We acknowledge the limitations of the methods of assignment for both samples. General surgeons in Auckland and Waikato might differ from their colleagues elsewhere in New Zealand. Also, the non-random assignment of district nurses to either type of data collection method prevents an accurate measure of non-response for the face-to-face interviews for this sample.

A two page questionnaire (modified after pre-testing with health professionals) was sent to 109 general surgeons in areas outside Auckland and Waikato, and to 34 district nurses. One reminder with another copy of the questionnaire was sent to non-respondents two weeks later. The same questionnaire was used in the face-to-face interviews, which were arranged by telephone and then carried out by one of the authors, thereby minimising bias across interviewers. In several instances a written request for interview was sent to potential respondents, usually to verify our bona fides. Arguably, our face-to-face interviews could be considered 'mixed mode' (telephone appointment: subsequent interview) rather than 'pure' face-to-face interviews derived from 'cold calling' or 'door knocking'. However, in the health sector, 'pure' face-to-face interviews would seem to be a very risky, if not foolhardy, approach. Nevertheless, we have termed our personal interviews 'face-to-face' interviews as this seems an accurate and convenient description.

Results and Discussion

The results in this article are derived from a larger study of health professionals' behaviour and attitudes to surgical dressings (McFarlane 1992). In the larger study, the answers to a number of behavioural questions on dressings and their use were compared across the two data collection methods. This comparison revealed no statistically significant differences at the 5% level in those results. Additionally, the costs of conducting the two types of survey were compared and, not unexpectedly, the interview method was substantially costlier than

the mail survey method. This finding is well known to all researchers and has not been pursued in the current article.

Response Rates

While general surgeons and district nurses constitute a group of people we have termed 'health professionals', each is an independent sample. Therefore response rates (and subsequent results in this study) are presented for both survey methods by occupation. (See Table 2.)

The response rates by survey method for general surgeons were almost identical. However we suspect the response rate for the mail survey may be understated because telephone contact with general surgeons in Auckland and Waikato revealed 13 of them no longer qualified for the survey through retirement, change of position, and so on. Such information was not available from the mail survey of general surgeons only two of whom were 'gone no address'.

Table 2. Response rate by survey method

Response	General Surgeons		District Nurses ³
	Mail n	F-t-F N	Mail n
Attempted contact: "sent out"	108	49	34
Ineligible ¹	2	13	-
Potential respondents	106	36	34
Refusals	4	7	3
No reply	42	9	7
Valid response: interviews	60	20	24
Response Rate ²	57%	56%	71%

Note 1. Includes 'Gone no address', retired, change of position, gone overseas, dead.

2. Response rate = [Valid responses/(Total Sample - Ineligibles) x 100.

3. Non-random assignment of district nurses to each survey method on the basis of their presence or absence in the office on the days assigned for personal interviews prevents accurate measurement of response rate; how does one account for the 34 district nurses not present? Depending on the method chosen for calculation of response, we could claim a 91% response rate ($43-4 = 39 / 43 = 91\%$) or a 50% response rate ($77-4-34 = 39 / 77 = 50\%$). Note that four district nurses refused an interview.

For district nurses, the groups chosen for each survey method were not randomly assigned. Hence the response rates are not comparable. The mail survey of district nurses received a 71% response and was organised with the blessing of the health authority, the Nurses' Association and the manager of each regional office. Comparatively, the mail survey response rate for general surgeons (57%) was considerably lower; general surgeons are rather more "independent" than district nurses, and have no equivalent Association.

Despite the comparatively lower response rate from the mail survey, this method is still worthy of consideration for surveying health professionals as these results were achieved with only two waves (for financial reasons). Table 3 shows that the second wave yielded a 12 and 13 percentage point increase respectively in response.

Table 3. Response rates by wave : mail surveys

	General Surgeons		District Nurses	
	n	%	n	%
Wave 1	46	44	20	59
Wave 2	14	13	4	12
Total²	60	57	24	71

Note 1. Adjusted for Ineligibles.

2. Represents cumulative valid responses and response rates.

Evidence from work by Brennan (1992) shows that a third wave might have yielded another five to ten percentage point increase in response with each occupational group, thereby increasing the mail survey response rate to what many researchers would consider relatively satisfactory for this type of research. There is, of course, the proviso that the researcher has the time to implement several 'waves' in a mail survey, a luxury not always available to the commercial researcher.

"Quantity" of Response

Market researchers in New Zealand feel slightly uncomfortable about the amount of response that they might receive to open-ended questions (free response questions) in a mail survey as compared to the same open-ended questions in face-to-face interviews conducted by experienced interviewers. The authors acknowledge that there is a risk attached to relying on information from open ended questions in a mail survey. There is no immediate opportunity to clarify respondents' answers or probe out additional answers or probe answers to a greater depth such as exists in a face-to-face interview. One way of comparing the "quantity" of information derived from open-ended questions in the two forms of survey is to compare the average number of responses, and this analysis is presented in Table 4.

These results give some credence to the authors' contention that the quantity of response from well conducted mail surveys can match that obtained from face-to-face interviews under certain circumstances. In Table 4, no pairs of mean values (comparisons of mail survey with face-to-face interview) were significantly different at the 5% level on a t test for general surgeons or district nurses. For the types of questions investigated here (which are relatively straightforward open-ended questions) the presence of an interviewer has not yielded greater amounts of information. Admittedly, the purpose of the open-ended questions was to elicit lists and short answers; complex questioning and interviewers trained in qualitative research techniques might have produced different results.

Table 4. Mean number of responses to open-ended questions

Surgical dressings: Open-ended responses to...	General Surgeons		District Nurses	
	Mail (mean)	F-t-F (mean)	Mail (mean)	F-t-F (mean)
Benefits for health professionals	2.38	2.70	2.67	2.82
Benefits for patients	1.95	2.40	2.50	2.38
Brands and types	2.27	2.15	2.67	2.36
Problems	1.07	1.20	2.13	1.38
Totals across 4 questions	7.67	8.45	9.97	8.94
Sample sizes	60	20	24	39

Quality of Response

Mail survey response can suffer from not only the amount of information given in response to an open-ended question but also the variety (depth of coverage of the topic) of response. Table 5 compares the proportion of unique answers for each open-ended question (that is, the number of different responses received divided by the number of respondents) for each survey method.

Table 5. Proportion of unique responses to open-ended questions

Surgical dressings: Open-ended responses to...	General Surgeons		District Nurses	
	Mail r^1	F-t-F r	Mail r	F-t-F r
Benefits for health professionals	0.40	0.75	0.71	0.51
Benefits for patients	0.40	0.80	0.63	0.41
Brands and types	0.70	0.85	0.67	0.49
Problems	0.23	0.70	0.88	0.49
Totals across 4 questions	1.73*	3.10*	2.89*	1.90*
Sample sizes	60	20	24	39

Note 1.

r = ratio, derived from number of unique responses divided by sample size.

* $p < .10$ for the difference between these pairs of results.

The results show some difference (significant at the 10% level) in the variety of answers derived from either type of survey in favour of face-to-face interviews for general surgeons

but in favour of mail surveys for district nurses. These two contradictory results are not easy to interpret.

Acquiescence

Ayidiya and McClendon (1990) suggest that acquiescence (the tendency to overstate agreement or favourability) is more likely in a face-to-face interview compared to a mail survey, simply because in the latter, respondents have more time to consider their answers and because they can reconsider these answers (and change them) if they so wish. We sought to test health professionals' tendency for acquiescence by asking them to consider a specific type of surgical dressing against all other surgical dressings on seven factors:

- the price of the dressing - patient pain
- its overall cost in usage - patient comfort
- its ease of use - the risk of infection
- its healing time

To register their opinion, health professionals were requested to rate the dressing under investigation on a five point Likert-type scale of favourability with 1 labelled as 'unfavourable' and 5 labelled as 'favourable'. Acquiescence is tested by comparing the mean ratings for each factor for the face-to-face interviewees against those of the mail survey respondents. If the mean ratings for some or all of the factors are significantly more favourable for the interviewees, then acquiescence might be present.

Table 6. Mean ratings of surgical dressings: test for acquiescence

Factors	Average ratings of favourability ¹			
	General Surgeons		District Nurses	
	Mail (mean)	F-t-F (mean)	Mail (mean)	F-t-F (mean)
Price of dressing	1.5	2.0	2.3	1.8
Overall cost of use	1.9	2.5	2.5	3.0
Ease of use	2.7	3.6	2.9	2.9
Healing time	3.1	3.3	3.4	2.7
Patient pain	3.4	3.6	3.5	3.3
Patient comfort	3.2	3.7	3.4	3.3
Risk of infection	2.8	3.0	2.5	3.4
Total	18.6	21.7	20.5	20.4
Sample sizes	60	20	24	39

Note 1. Ratings on a five point scale: 1 = unfavourable, 5 = favourable.

The general surgeons who were interviewed face-to-face, gave, on average, more favourable ratings on all factors. While this suggests the possibility of some acquiescence bias, none of the differences, or even the trend in Table 6, were statistically significant on a t test or a Mann-Whitney U test ($U_0 = 14$, $p = .21$). At worst then, we can conclude that if there is any acquiescence bias, it is minimal.

Social Desirability

The assertion that social desirability bias may be more likely in the answers of interviewees than from mail survey respondents was tested by requesting health professionals to register their knowledge of a specific type of surgical dressing.

Reference to Table 7 shows some difference in knowledge of the specific type of surgical dressing of interest but none of the differences between proportions are statistically significant at the 5% level. In this study, the two groups of health professionals show no propensity for socially desirable answers, although the differences in claimed awareness for general surgeons make interesting reading and one wonders about the handicap of a small sub-sample size for the face-to-face method here.

Table 7. Awareness of surgical dressings: test for social desirability

Heard of specific type of dressing?	General Surgeons		District Nurses	
	Mail (60)	F-t-F (20)	Mail (24)	F-t-F (39)
	%	%	%	%
Yes	67	85	58	46
No	33	15	42	54
Total	100	100	100	100

Conclusion

Our assertion that mail surveys of general surgeons and district nurses may yield similar response rates to face-to-face surveys conducted with the same group is partly met in this research. General surgeons were just as likely to respond to either method of data collection; district nurses were more likely to respond to the face-to-face survey but as explained, our method of assigning district nurses to each method was not random. However, the 71% response rate achieved by the mail survey of district nurses could be considered "good" and lies near the upper rates achieved by researchers working with health professionals (mainly physicians) in the United States. Hence we would claim that research with certain groups of health professionals in New Zealand is definitely appropriate by mail survey. Indeed the cost efficiencies of mail surveys vis-a-vis face-to-face surveys, (not compared in this article), combined with the response rates we obtained for mail surveys, make this method of data collection very appealing to New Zealand researchers. A word of caution though; perhaps the

brief (two page) questionnaire on a topic of interest to the respondent (surgical dressings) contributed substantially to the response rate.

Critics of mail surveys and self completion questionnaires in general will contend that the amount of response and the "richness" of that response derived from open-ended questions will be inferior to that received from an equivalent face-to-face survey. In our research this did not hold; the presence of an interviewer did not necessarily yield greater amounts of information nor did our results show any conclusive difference in the quality of responses.

Critics of interview surveys might query face-to-face data collection methods on the grounds of acquiescence (primarily from hasty completion) and social desirability bias. While both of these biases were detected in our results for general surgeons, neither was sufficiently large to provide conclusive evidence of an impact.

We believe that our findings give some reassurance to researchers in the health industry that mail surveys of health professionals can produce results similar to those obtained by face-to-face interviews. The cost advantage of well conceived and well conducted mail surveys over face-to-face surveys of the same population must surely be attractive to New Zealand researchers.

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