

Interviews or Postal Questionnaires? Comparisons of Data about Women's Experiences with Maternity Services

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POSTAL SURVEYS HAVE A NUMBER OF ADVANTAGES over interviews. They are considerably cheaper and, because interview studies are almost always clustered in order to keep down costs, postal ones can be more widely distributed geographically. Another advantage is that they are more easily repeatable; there is no interviewer effect and no problems ensuring that interviewers are adequately trained and briefed and are following instructions in the appropriate way. Studies have shown that reasonable response rates can be obtained to mail surveys (Scott 1961; Austin, Lewis, and Scammell 1977). But how do the response rates, response biases, frequency of inadequate response, and the nature of replies compare for postal and interview approaches? These questions were posed as part of a larger study aimed at assessing the feasibility of monitoring maternity services by sending postal questionnaires to mothers (Cartwright 1987).

Methods

To answer these questions an experiment was done in two phases. Both were carried out in four registration districts: Hendon (London), Sandwell (Midlands), Bury (Lancashire), and Beverley (N. Yorkshire).

Areas were chosen to give a geographical spread and because the Institute for Social Studies in Medical Care had experienced interviewers there. In each of these areas the Office of Population Censuses and Surveys selected a random sample of 100 births registered in July 1983 for the first phase, and further samples of 100 registered in November 1983 for the second phase—a grand total of 800 births. At both phases 50 in each area were allocated alternately to the postal study and 50 to the interview one. Data on the first phase were collected during October to December 1983 and on the second during February to April 1984. The postal questionnaire was made up into a booklet on A5 paper with 20 pages and was accompanied by a personalized letter. Two reminders with further copies of the questionnaire were sent to the postal sample three and six weeks after the initial approach. Interviews were carried out in the mothers' homes and at least three calls were made before a non-contact was accepted. Two experienced women interviewers worked in each of the four areas. Interviews were allocated to them on a geographical basis. No proxy interviews were accepted.

A number of the differences that emerged at the first phase seemed to be due to the way the questions were laid out or put forward. At the second phase the questionnaires were modified to try to eliminate these differences. Apart from these questions that were changed, the information from the two phases has been amalgamated.

Response Rates, Bias, and Frequency of Inadequate Response

Response rates were higher for the interviews than for the postal study: 92 percent compared with 75 percent, a substantial difference. The response to the postal study was lower than in another related study on the same topic which was based on a larger random sample of birth registrations, for which it was 79 percent. (Cartwright 1986b). In that other study there was a wide variation between areas from 87 percent to 66 percent. These area variations were, in part, related to differences between the areas in the birthplace of the mothers and the social class of the fathers' occupations, both of which were associated with differential response rates.

TABLE 1
Percentage of Response Rates by Area, Country of Birth, and Social Class

	Postal		Interview		Total	
Area	%	(N)	%	(N)	%	(N)
Hendon	68	(100)	91	(100)	80	(200)
Sandwell	75	(100)	87	(100)	81	(200)
Bury	72	(100)	95	(100)	84	(200)
Beverley	84	(100)	94	(100)	89	(200)
Parents' country of birth*	%	(N)	%	(N)	%	(N)
Both in British Isles**	80	(314)	92	(311)	86	(625)
Both in Asia	24	(29)	90	(30)	58	(59)
British Isles/Other	75	(24)	83***	(18)	79	(42)
Other	66	(32)	93	(40)	81	(72)
Social class of father's occupation	%	(N)	%	(N)	%	(N)
Middle class (non-manual)	78	(138)	96	(159)	87	(297)
Working class (manual)	74	(220)	90	(211)	82	(431)
Unknown or inadequate information	70	(23)	89***	(19)	79	(42)
No father identified	68***	(19)	73***	(11)	70	(30)

* If no father was identified the mother's country of birth was classified. There was inadequate information on two birth certificates.

** England, Wales, Scotland, N. Ireland, Eire.

*** Based on less than 20.

Figures in brackets in this and subsequent tables are the numbers on which the percentages are based (= 100%).

An analysis of response rates by these factors for the postal and interview samples in this experiment is shown in table 1.

In each area there was a significantly higher response to the interviews than to the postal questionnaire. (In general, attention is not drawn to differences which might occur by chance five or more times in 100. Chi-square and tests for differences between proportions were used.) There was no significant difference in response rates between the four study areas in either the postal or the interview group, but if Beverley is compared with the other three the response in the postal group is higher there—84 percent compared with 72 percent. And in Beverley less than 1 percent of the births were to Asian parents compared with between 9 percent and 12 percent in the other areas.

When both the parents had been born in Asia there was a very

poor response to the postal questionnaire—24 percent. This contrasts with the 90 percent response rate among this group to the interview, although on another, earlier, interview study based on a larger national sample of mothers (Cartwright 1979) a lower response rate, 81 percent, was obtained from mothers born in India, Pakistan, or Bangladesh than for those born in England, Wales, or Scotland, for whom it was 92 percent (additional unpublished data). On the current study for mothers who described their ethnic origin as Asian, interviewers assessed their English as “native” (4 percent), “good” (48 percent), “fair” (7 percent), “poor” (15 percent), and nonexistent (26 percent). Over a third of the interviews with Asian mothers were done through an interpreter, generally a husband or female relative. All the mothers included in the study who had no English were interviewed through an interpreter, as were a third of those whose English was poor. Inability to understand and complete the questionnaire obviously contributed to the poor response among this group in the postal survey. And this led to a bias in the final sample: among those who completed the postal questions only 2 percent of the parents were both born in Asia, against 7 percent of those who were interviewed and 7 percent of the initial sample. But since four out of five of the interviews carried out through an interpreter, although usable, were categorized by the interviewer as “not satisfactory,” the apparent advantage of the interview approach is less clear-cut.

For the social class of the father's occupation a higher response rate among the middle class than among the working class was expected for the postal group. This was found in the other related study (Cartwright 1986a). But here, although the difference was in that direction, it was small and insignificant for the postal group but larger and significant for those approached by interview. Middle-class mothers seem more willing to participate in surveys, and/or are easier to trace, and are more likely to complete postal questionnaires. Cannell and Fowler (1963) report a rather similar finding for education which, contrary to their predictions, turned out not only to affect the accuracy of responses to both interviews and “self-enumerative” procedures, but also had a greater effect in the interview.

When the marital status of the mother is considered (strictly her estimated marital status from the information on the birth registration), it was found that the response rate was higher for the interviews than for the postal questionnaires for both single and married mothers,

although for the single the difference did not reach statistical significance. While there was no difference in the response rate to the postal questionnaire between single and married mothers, single mothers were less likely to be interviewed (table 2). But in spite of this there was no significant difference between the two groups in the responding sample; 13 percent of those in the postal group were estimated to be single, 12 percent of those in the interview one. These proportions compare with 13 percent in the initial sample.

Inadequate responses to particular questions were three times as common on postal questionnaires than at interview: the average proportions were 1.9 percent and 0.6 percent. The types of question which led to most inadequate answers on the postal questions were those demanding a single answer from a list of possibilities (for example, which *one* was most helpful or important), as many mothers indicated more than one, and "open questions" at which answers had to be recorded. For the single-answer questions the average proportion of inadequate answers were 7.2 percent on the postal questionnaires and 0.5 percent to the interviews; for the open ones the proportions were 5.9 percent and 1.9 percent.

Differences in the Nature of Responses

Before doing this study a number of subjects were identified to which it seemed possible that mothers might respond rather differently in a face-to-face interview than when they were completing a postal questionnaire. These were: taboo subjects which mothers might want to forget; delicate subjects which some mothers might be reluctant to discuss or record; laden subjects in which a "right" or acceptable answer could be identified; criticisms; and "open" questions involving written or oral comment. Results are presented under these headings and discussed in relation to the predictions that had been made.

Taboo Subjects

In an earlier part of this project it was found that in a postal survey mothers tended to underreport terminations that were recorded in medical records (Martin 1987). It was predicted that they would be less inclined to do this at interview than on a postal questionnaire.

TABLE 2
Percentage of Response by Marital Status

	Postal	Interview	Total
No father identified	68% (19)	73% (11)	70% (30)
Father identified but assumed not married*	73 (33)	83 (42)	79 (75)
Assumed married	75 (348)	93 (347)	84 (695)

* The mother and father had different but non-Asian names.

Faced with a direct question at a face-to-face interview they would tend to answer spontaneously and correctly; with a postal questionnaire they would be more likely to hesitate, consider, and omit the information. But there were no differences between the two groups in the proportions reporting this and other painful incidents such as a stillbirth, an adoption, a miscarriage, or a child born alive who had subsequently died.

Delicate Subjects

It was felt that some people might be more prepared to admit to premarital conceptions or unintended pregnancies in an interview whereas others might be more willing to record them on a postal questionnaire. No differences between the responses in the two groups were therefore predicted. In practice there were no differences between the interview and postal groups over reported marital status, premarital conceptions, or over their statements about whether they intended to become pregnant that time. Over their initial attitude to an unintended pregnancy there was a significant difference: more of those who were interviewed said they were sorry it happened at all, 8 percent compared with 3 percent on the postal group. (Two questions were asked. First an open-ended one: "When you first found you were pregnant [with the last baby] how did you feel about it then?" Then a summary one: "So, on balance, leaving aside what you feel now, at the time would you rather it had happened a bit later, or were you pleased you were pregnant then or sorry it had happened at all?") There was no difference in the proportion who said they had felt pleased they were pregnant then (80 percent and 82 percent in the interview and postal groups respectively). Those completing the postal questionnaire were rather more likely just to say they would "rather it had happened later" (15 percent compared with 11 percent of those who were interviewed); it seemed that those who were interviewed expressed their views in a more extreme way.

Another possibly delicate subject related to being less interested in sex since the baby was born. Thirty-nine percent of the mothers in both the postal and the interview sample reported this.

TABLE 3
Percentage of Smoking and Drinking

	Postal	Interview
Smoking		
Never smoked	71%	67%
Continued to smoke	7	12
Gave it up	7	8
Cut down	13	11
Started to smoke	—	—
Increased smoking	2	2
(N)	(298)	(366)
Drinking alcohol		
Never drank	50%	39%
Continued to drink	7	17
Gave it up	19	23
Cut down	24	21
Started to drink	—	—
Increased drinking	—	—
(N)	(298)	(365)

Laden subjects

Here the prediction was that more of those who were interviewed would give acceptable answers, because they would be less willing to present themselves in an unfavorable way in a personal situation than on paper. This was the more common difference in earlier North American studies (Hyman 1954). More recently Wallace and Haines (1985) have shown that a self-administered questionnaire to women about alcohol consumption revealed higher levels of consumption than those admitted at an interview. But a comparison of histories of alcohol, tobacco, and drug use by computer interview, self-completed questionnaire, and face-to-face interview found no significant differences in levels of consumption or problems reported (Skinner et al. 1985). And on the current study the prediction was not borne out over smoking, drinking, or breast feeding. In fact, rather *more* of those in the interview than in the postal sample said they had continued to smoke and continued to drink alcohol during their pregnancy, and fewer of them said they never drank (table 3). Over breast feeding the only significant difference was that a higher proportion of those

in the postal sample said they had been uncertain about their intentions before the baby was born—8 percent compared with 4 percent. Possibly this was because this alternative was listed on the postal questionnaire but was not read out at the interview—an example of a difference in presentation which was not picked up and eliminated.

Attendance for antenatal care was another potentially laden subject and over this some predictions were fulfilled. Although similar proportions of the postal and interview groups admitted that they had missed one or more of their antenatal visits, more of those in the interview group said they had first started going to antenatal visits when they were less than ten weeks pregnant—48 percent compared with 32 percent in the postal group. In addition, a smaller proportion of those in the interview group said they had been to fewer than ten antenatal visits—18 percent compared with 29 percent of those in the postal group.

Since some mothers may still have had a record of their antenatal attendances, an alternative explanation of these differences is suggested by Cannell and Fowler (1963) who put forward the hypothesis that “information gathered by the self-enumerative procedure is more accurate when records are available, since this procedure provides more opportunity for consulting records than does that of the interview.”

Criticisms

It was predicted that more criticisms of the care they received and the way they were treated would be reported at interviews than recorded on the postal questionnaires. This was because it was felt that there is a general reluctance to criticize nurses and doctors, and this reluctance was more likely to be overcome by a sympathetic interviewer, whereas having to record it on paper was likely to have the opposite effect.

There were ten precoded questions at which criticism or praise or satisfaction were directly invited. For two there were differences in the predicted direction: those who were interviewed were more likely to describe the advice and support they were given over feeding the baby as “not helpful”—28 percent compared with 17 percent; and to report that they had not found the preparation classes they went to useful—17 percent against 8 percent. But this last difference between the two approaches was confined to the middle-class mothers; there

TABLE 4
Percentage of Non-critical Responses by Social Class and Type of Approach

Proportion describing the way they were looked after during labor and delivery as very kind and understanding			
	Postal	Interview	Total
Middle-class	75% (102)	62% (143)	67% (245)
Working-class	60 (154)	58 (186)	59 (340)
Both classes	66 (256)	60 (329)	62 (585)
Proportion feeling they had been given enough help and advice about how to look after the baby			
Middle-class	86% (105)	75% (151)	79% (256)
Working-class	73 (162)	76 (188)	74 (350)
Both classes	78 (267)	75 (339)	76 (606)
Proportion who were able to find out all they wanted to know while in hospital			
Middle-class	85% (103)	75% (151)	80% (254)
Working-class	72 (159)	73 (188)	73 (347)
Both classes	77 (262)	74 (339)	76 (601)

was no significant difference over this between the working-class mothers who were interviewed and those who completed the postal questionnaire.

For two other questions there was a similar difference between the postal and interview approach among middle-class mothers but not among working-class ones. The figures are reported in table 4, together with the responses for one other question which showed a similar pattern although the difference did not quite reach statistical significance.

For six of the ten questions there was a significant difference between middle-class and working-class mothers, with the working-class ones expressing less satisfaction. For two others there was a difference that almost reached statistical significance. But among the postal responses there were class differences for six of the ten questions compared with only three out of the ten among the interviews.

At "open questions" the prediction that more answers would be reported at interview than recorded on postal questionnaires was fulfilled. This seemed likely because many people find it easier to express themselves orally than in writing. Two open questions related to

TABLE 5
Percentage of Praise and Criticism at Open Questions about Their Antenatal Care

		Postal	Interview
Praise of: (%)	General practitioner	21	29
	Hospital	7	18
Criticism of: (%)	General practitioner	4	10
	Hospital	18	28
Number of mothers (= 100%)		(272)	(357)

what, if anything, was good about their antenatal care and what, if anything, was bad about it. Among those who responded, there were no significant differences between the two groups in the proportion reporting either that nothing was good or that nothing was bad about this aspect of their care, but when the comments they made are classified in terms of praise or criticism of the hospital or of the general practitioner service, those who were interviewed expressed more praise and more criticism of both sources of care (table 5).

In addition to the open questions, there were two questions at which additional comments were invited. One of these was about whether the doctors and midwives explained what was happening during labor and delivery or whether the mothers would have liked more explanation. The second was about the way they were looked after during labor and delivery. At both questions additional comments were recorded for roughly nine out of ten of those who were interviewed, but less than one out of three recorded additional comments on the postal questionnaire. Those who were critical were more likely to make additional comments.

Questions at Which No Differences Were Predicted

There were a number of questions that were thought to be unproblematic in that they did not seem to involve issues that were identified as laden, embarrassing, or that fell into any of the other categories. Nevertheless, some differences did emerge and these are discussed

first in relation to factual questions and then in relation to those involving attitudes.

Factual Questions

Differences were neither predicted nor found for questions concerning the number of other liveborn children, advice given during pregnancy, the place of the baby's birth, any change in place of birth from initial booking, a number of occurrences during labor and delivery (Caesarean sections, inductions, artificial rupture of membranes, enemas, shaving, epidurals, other forms of pain relief, episiotomy, father's or partner's presence during labor and at birth, the times at which the mother could feed the baby while they were in hospital, the mother's year of birth, home ownership, religion, whether and for how long she had worked during pregnancy, and the type of work she had done).

There were seven factual questions at which unpredicted differences were observed. One should have been predicted if the differential response relating to the parents' place of birth had been taken into account, since it almost certainly arose because of this. When asked to describe their ethnic origin, 13 percent of the mothers who were interviewed described it as Asian, compared with 7 percent of those completing the postal questionnaire. Another difference probably arose because of the way the question was presented. When asked who had organized any preparation classes they had been to, more of those who were interviewed, 22 percent, as against 6 percent of those completing the postal questionnaire, gave other answers which did not fit into the four categories we had listed on the postal questionnaire: hospital, general practitioner, midwives, National Childbirth Trust. But those who were interviewed were not confronted by such a list.

The other factual questions which showed unexpected differences were about changes in diet during pregnancy, medicine taking during pregnancy (two questions), their ability to move around during labor, and whether they were able to hold the baby as soon as he or she was born.

Over diet changes and medicine taking, more of those who were interviewed gave positive responses. This is shown in table 6. Possibly interviewers tapped a somewhat deeper level of response and got mothers to think more carefully about what had happened.

But it was not that those who were interviewed generally tended

TABLE 6
Percentage of Diet Changes, and Medicine Taking during Pregnancy

	Postal	Interview
Changed diet in some way during pregnancy:		
Yes	35%	52%
No	65	48
(N)	(299)	(366)
During pregnancy took:		
Iron tablets or iron medicines	91%	96%
Vitamin tablets	23	35
Aspirin or other pain relievers	17	31
None of these	6	2
(N)	(298)	(367)
Other medicine prescribed by hospital or doctor during pregnancy:		
Yes	32%	44%
No	68	56
(N)	(288)	(365)

to give more positive responses. More of those who filled in the postal questionnaire than of those who were interviewed said they were able to move around during the first stage of their labor—66 percent compared with 57 percent. Similarly, more of those completing the postal questionnaire said they were able to hold the baby as soon as he or she was born—82 percent against 74 percent.

Attitudes

Over attitudes, even those considered unproblematic, there were rather more differences. Of the twelve procedures during labor and delivery that were asked about, six resulted in significant differences in their stated preferences compared with only two in their statements about what happened. There was no systematic pattern in the way the responses varied, however. The other five observed differences over attitudes all seemed in various ways to be related to differences in the ways in which the questions were presented. Details of these differences are available in a working paper from the Institute for Social Studies in Medical Care.

Finally, there were a number of attitude questions for which no difference was observed between the two approaches. These were about

their preferences for or against six procedures, and an open question about whether before they had the baby they had any particular ideas about how they wanted the labor and delivery managed, that is, any hopes or fears about what might be done to them then (56 percent said yes). Another asked how they would describe their pain or discomfort during labor and delivery and listed six possible answers including one that indicated they had not known what to expect.

The Effect of the Known Bias

Before discussing and summarizing the results from this experiment, it is appropriate to examine the possible effects of the identified bias in the postal sample on the differences between the two groups. Thirteen percent of the mothers who were interviewed described their ethnic origin as Asian, compared with 7 percent of those completing the postal questionnaire. If this had contributed to any of the observed differences, Asian mothers would have responded differently from others to the various questions involved. This possibility was explored. (This analysis has been done on the basis of their reports of their ethnic origins rather than the data from the birth certificate on place of birth since the latter is only a guide to ethnic origin. In fact, for none of the mothers who described herself as Asian were both she and her partner born in Britain.)

More of the Asian than other mothers said they never smoked and never drank alcohol, while fewer described the help they were given over feeding the baby as "not helpful." Excluding the Asian mothers would make the differences between the postal and interview groups even more marked for these questions, so it does not help in the interpretation of the observed differences on laden topics.

There were a number of other differences between the Asian and other mothers in the sample which went in the direction that might have contributed to the observed difference between the postal and interview groups. More Asian mothers said they had changed their diet during pregnancy (56 percent compared with 43 percent), more took vitamin tablets during pregnancy (48 percent compared with 28 percent), and fewer Asian mothers said they were given too much information about some things and too little about others (8 percent compared with 18 percent). Significant differences, however, remained

between the interview and postal responses when Asian mothers (and the few whose ethnic origin was unknown) are excluded from the comparisons on all these questions.

Telephone Interviews?

In North America many surveys are now done by telephone, and there have been a number of studies comparing this approach with both personal interviews and with postal studies (see, for example, Hochstim 1967; Siemiatycki 1979). In a comparison of the three methods, Siemiatycki reports that the enormous cost differential between home interviews and the other two methods is generally unjustified as there are no substantial advantages in the quality or quantity of information obtained. He concludes that "present evidence indicates a choice between a telephone strategy which gave higher response rate and a mail strategy which provided higher quality data." In North America, however, the great majority of households have a telephone; in Britain it is only three-quarters (Office of Population Censuses and Surveys 1984). In the main postal studies of mothers (Cartwright 1986b), the last question asked whether they would be prepared to help us again some time and if so they were asked for their telephone number if they had one. Ninety-one percent were willing to help again and of these 62 percent recorded a phone number. The proportion who were willing to help did not vary with social class, but among those who were willing the proportion who gave a telephone number declined steadily from 85 percent in Social Class I to 35 percent in Social Class V. Such a bias makes telephoning unacceptable as the only method of approach for this type of sample. It might be worth experimenting with, however, as an additional approach to those who do not respond to a postal one.

Discussion

In this study the main disadvantage of the postal approach was the comparatively low response rate, 75 percent, compared to 92 percent to the interviews. Probably because of the particular areas chosen for the study the response to the postal questionnaire was unusually low.

Nevertheless, only one clear bias in the resulting samples was identified: Asian mothers were underrepresented among those responding to the postal study. Although the interview approach did not suffer from this bias quantitatively, the quality of the information obtained from this group was less than satisfactory even though interpreters were used when needed.

It is, of course, possible that there were other unidentified biases: those who were critical may have been stimulated to complete the questionnaire to a greater extent than others; alternatively it may be compliant, acquiescent mothers who were more likely to respond. Other possibilities are that the depressed may be too inert, the disorganized too muddled, the critical too rebellious. These characteristics are difficult to measure anyway and impossible among nonresponders. Some limited data are available from hospital records as well as birth registration forms. These indicate relatively low response rates to a postal study from mothers whose baby was ill or who died and from those in the lower social classes (Cartwright 1986a). There is some evidence that these two biases also operate in interview surveys. A lower response from mothers who had had a stillbirth than from those with a live birth was found on one study (Cartwright 1979).

What are the main conclusions about the nature of the responses to the two types of approach? The first is that in spite of the sizeable difference in response rates and the identifiable bias there were no major differences in the nature of responses. This article has inevitably highlighted the differences that were observed.

Replies to painful and delicate subjects were similar in the interview and in the postal groups. If people concealed such events they did so equally often in the two situations.

Topics which had been identified as laden appeared to produce a number of differences, but some in one direction, others in another. Thus, mothers seemed more willing to say they did the *wrong* thing over smoking and drinking in an interview, but they were also more likely to say they had done the *right* thing in starting antenatal attendances early and going to ten or more such visits.

There was some support for the prediction that criticisms would be more often reported at interviews than on postal questionnaires. An unexpected finding was that the different methods of approach had more effect on middle-class than on working-class mothers. As working-class mothers were generally more critical than middle-class

ones, it is possible that they felt more strongly about the way they were treated and were anxious to express their criticisms whatever the medium; with the middle-class mothers interviewers may have been tapping a different level of critical feeling.

Finally, although rather fewer comments tend to be made at individual questions on postal questionnaires than at interviews, a wealth of illustrative material can be obtained by including a blank sheet of paper and inviting additional comments (Cartwright 1985).

In sum, the results are encouraging in that they suggest that responses to postal questionnaires in general are similar to those obtained in interviews in spite of a lower response rate. Postal studies have a number of advantages over interview studies: they are cheaper, can have a wider geographical spread, are not subject to an interviewer effect (which means that comparisons between areas are free from interviewer bias), and possible answers to questions can be presented in a more straightforward way. They could be used more frequently both nationally and locally to study women's experiences of, and attitudes to, maternity services.

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