

Contemporary Themes

Professionals as responders: variations in and effects of response rates to questionnaires, 1961-77

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A basic feature of the work of the Institute for Social Studies in Medical Care (formerly the Medical Care Research Unit of the Institute of Community Studies) is that, in its studies of the social aspects of health care, viewpoints of both patients and professionals are considered. Over the past 16 years we have approached 19 samples of professional groups and asked them to participate in our surveys by answering some questions. Their response rates have varied from 56% to 99%. This paper considers two questions: what factors influence response rates and in what ways the responding professionals may be unrepresentative.

Factors influencing response rates

Table I summarises the response rates to the various studies. Variable factors that seem to have influenced response rates are: the type of professional (doctors or nurses, general practitioners or consultants); the type of approach (interview or postal questionnaire); the length of the questionnaire; the sponsoring body; and the subject of the study. Response rates also seem to have declined with time. Before discussing these factors, I shall discuss ways in which our methods of approach have remained the same.

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Our initial letter for both interview and postal studies is on headed paper from the institute and is mimeographed. The name of the recipient is written or typed in, and the letters have generally been signed individually. Points that are made in the letter are: the aim of the study; how we got the recipient's name; information is treated confidentially and is not passed to anyone outside the institute, and in any reports or publications individuals or particular hospitals cannot be identified.

Envelopes have sometimes been handwritten and sometimes typed. We have not done a study about this. We have always used stamps rather than a franking machine.

Postal questionnaires are sent with a serial number that enables us to identify who has responded and to link replies with any other information we have about the individuals.

Reminders—Two reminders are normally sent in postal studies, but in one study¹ we used one postal and one telephone reminder. Additional questionnaires and prepaid envelopes have been included with all second reminders, and latterly with first reminders as well. One of the reminders has usually been written and signed by a member of the profession approached who had some ties with the institute.

TYPE OF PROFESSIONAL

Our response from doctors has varied from 56% to 86%, while for nurses (health visitors, midwives, and district nurses) it has never been below 78% of those in the sample and has been as high as 99%. With nurses the main problem has been getting lists of people working in our sample of areas or hospitals. Once we had the lists our success rate has always been over 90% (table I). Nurses may be more likely to respond than doctors because they are less often asked to take part in such studies. But the exceptionally high response from those approached suggests that if the medical officer or nursing officer gave us a list of the people we wanted to see the nurses thought that this

TABLE I—Response from professionals to studies carried out by the Institute for Social Studies in Medical Care

Study	Professional group	Year	Approach	Response rate (%)	No in initial sample
Cartwright ^{1,3}	General practitioners	1961	Interview	86	144
Cartwright and Marshall ¹⁴	General practitioners	1963	Interview	81	195
Cartwright ⁷	General practitioners	1964	Postal	76	552
Cartwright ^{2,3}	General practitioners	1967-8	Postal	72	1917
	General practitioners	1967-8	Interview	76	702
Cartwright ⁴	Health visitors	1967-8	Interview	98*	234
Dunnell and Cartwright ¹⁰	General practitioners	1969	Postal	78†	294
	General practitioners	1969	Interview	56	581
Cartwright <i>et al</i> ⁵			Postal	84 } 79	411
	District nurses	1969	Interview	95	532
	Health visitors	1969	Interview	99	76
Cartwright and Waite ⁹	General practitioners	1970-1	Postal	68	889
Waite ¹⁵	Health visitors	1970-1	Interview	98	773
Waite ¹⁶	Domiciliary midwives	1970-1	Interview	97	527
Waite ¹⁷	Consultant general surgeons and urologists	1971	Postal	74	553
Waite ¹⁸	Consultant psychiatrists	1971	Postal	82	476
Waite ¹¹	Consultant gynaecologists	1971	Postal	83	399
Cartwright ¹	Hospital-based midwives	1975	Interview	93*	418
	Consultant obstetricians	1975	Postal	81†	480
Cartwright and Anderson ⁸	General practitioners	1977	Postal	58	649
			Postal	67	543

*Indicates response rate after nurses had been identified from official lists of those working in sample area or hospital (see text).
†Proportion derived from initial sample.

was official sanction for the study. Among the different types of doctors, our response rate from general practitioners has varied from 56% to 86%, and from consultants the range has been similar—58% to 83%.

INTERVIEW OR POSTAL INQUIRY

We have twice tried an approach by interview and by post to comparable samples of general practitioners on similar topics. In both instances the response was insignificantly higher among those in the interview group (76% against 72% in the studies of family planning²⁻⁴ and 84% compared with 77% in the study of *Life before Death*⁵). Together the results of the two studies suggest a marginally better response to the interviews, but the difference is small and the cost of interviews so much greater that recently we have used a postal approach to general practitioners. On the other hand, all our studies of health visitors, district nurses, and midwives have been done by interview. This was partly because we could usually make appointments and interview them relatively economically at their place of work, but also because we thought that a postal approach to their clinic or hospital base (the only address we had) might encourage discussion and collaboration and lead to a consensus response rather than individual ones.

LENGTH OF QUESTIONNAIRE AND SPONSORING BODY

In 1967 we did an experiment in collaboration with the Medical Care Research Unit at Sheffield University. The general practitioners in Sheffield were divided into four groups in a 2x2 design. Two were sent a short, single-page questionnaire, two a longer four-page one. For two groups the questionnaires were sent from Sheffield University and for the other two from the Institute of Community Studies in London. Results (table II) showed that both the length of the questionnaire and the sponsoring organisation affected the response rates as expected.⁶

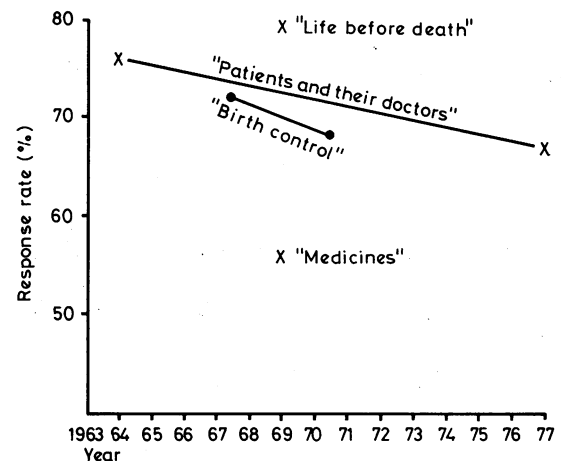
TABLE II—Variation in response rate from local general practitioners, according to length of questionnaire and sponsoring organisation. Figures are numbers (%) of responders

Organisation	Questionnaire		Total
	Short	Long	
Sheffield University	57 (96)	59 (78)	116 (87)
Institute of Community Studies, London ..	58 (83)	58 (67)	116 (75)
Total	115 (90)	117 (73)	232 (81)

SUBJECT MATTER AND TIME TRENDS

In 1964⁷ and again in 1977⁸ we did a study of general practice and of general practitioners' views and experiences of their work; and in 1967-8^{2,3} and again in 1970⁹ we surveyed general practitioners' attitudes and practices in relation to contraception. We were covering comparable samples of doctors on the different occasions. Response rates (figure) seem to have fallen with time. But the subject of the study seems to have had a greater effect on the response rate than the difference in time. This is suggested by results of two other studies carried out in 1969: one asking about the care of the dying had a relatively high response rate of 77%⁵; the other on prescribing and self-medication a comparatively low one of 56%.¹⁰

General practitioners probably see prescribing as a potentially more threatening subject than terminal care. The drop in the response rate to our two general-practice studies is all the more notable in that we had the backing of the General Medical Services Committee in 1977, while in 1964 we did not. So the fall in response rates has to be seen in the context of increasing support and recognition by professional bodies. The two studies in which we have approached consultants in obstetrics and gynaecology had very differing response rates. In 1971,¹¹ 332 out of 399 (83%) co-operated in a study of birth control services, while in 1975 only 379 out of 649 (58%) responded to a study of induction.¹ Both time and subject matter probably contributed to this difference.



Variation in general practitioners' response rate to postal studies, according to time and subject.

How representative are the responders?

Data about those who do not respond are usually limited to basic information from records such as date of birth (or year of qualification), sex, qualifications, type of area or appointment and, for general practitioners, list size and number of partners. Generally we have found that younger doctors are more likely to respond than older ones. For instance, in *Patients and Their Doctors*⁷ the response rate of general practitioners rose from 67% of those who qualified before 1935 to 88% of those qualifying in 1955 or later; while in *Parents and Family Planning Services*⁴ it was 63% among those aged 65 or more, rising to 90% of those who were under 30. Nevertheless, no such variation in response with age occurred in *Life Before Death*,⁵ so possibly older doctors found this subject more appealing than younger ones. Response rates from men and women doctors have been generally similar, although 87% of women general practitioners responded in *Parents and Family Planning Services*⁴ compared with only 74% of the men. Again, this may reflect a greater interest in the subject. Another general finding was a rather higher response from the better qualified or—among consultants—from those who held university appointments rather than NHS ones. In general practice, single-handed doctors have been less likely to participate than those working with others. Hence the bias is apparently towards the less isolated and more "with-it" doctors. Nevertheless, the characteristics we can study in this way are few, but fairly basic.

A potentially more sensitive indication of bias comes from the studies in which we have linked data from patients and professionals. We could do this only for general practitioners, but in several studies we could compare the patients' views and attitudes towards their general practitioners for doctors who participated and for those who did not. In these studies we often had the views of more than one patient about the same doctor, and the sample base was therefore patients' doctors. Results for the various studies are summarised below.

*Parents and Family Planning Services*⁴

Mothers who had doctors who did not collaborate were no less likely than other mothers to have discussed birth control with their present general practitioner, and they were about as likely to regard him as their most helpful source of advice and information. But when they were asked who they thought they would find it easiest to talk to about family planning (their own doctor or the health visitor) mothers with doctors who collaborated were more likely to say their own doctor than mothers whose doctors did not take part (59% compared with 50%). Variations in the proportion of mothers who thought that their general practitioner had enough time to talk about family planning (47% for the collaborators, 42% of the non-collaborators) and differences in the proportions of mothers currently taking the pill (21% and 16%) were not statistically significant ($0.10 > P > 0.05$). But when mothers had discussed birth control with their doctors 26% of the collaborating doctors had discussed two or more methods, while 19% of the non-collaborators had done this.

*Medicine Takers, Prescribers, and Hoarders*¹⁰

Eighty-five per cent of the adults whose doctor completed the questionnaire thought that their doctor had enough time to listen and do everything necessary for patients; fewer of those with doctors who did not reply (76%) described their general practitioner in those terms. A possible explanation is that the doctors who did not collaborate were busier than the others, so one reason for non-collaboration was lack of time. Adults were also asked whether they would discuss a personal problem with their doctor. Forty-four per cent of those whose doctor replied said they would, compared with 37% of the others. Nevertheless, the patients of those doctors who did not collaborate had consulted their doctors a similar number of times during the previous year to those people whose doctors completed the questionnaire. More importantly for the study, the proportions of people who had taken medicine, either prescribed or non-prescribed, did not differ.

*Life Before Death*⁵

There was no difference in the place of death of patients whose doctors participated in the study and those who did not, but patients of doctors who did not collaborate were less likely to have had 10 or more home visits in the year before they died (35% compared with 44% of patients whose doctors did take part) and they were less likely to have been visited by a district nurse (27% compared with 39%). Relatives more often thought that the doctor did not have time to discuss things when he failed to reply to the questionnaire (24% compared with 14%). A higher proportion said that they had known what was wrong with their dead relative when the doctor co-operated (51%) than when he did not (38%), and more of them said that they had got most of their information from their dead relative's general practitioner (48% compared with 37%). These findings suggest that the general practitioners who responded may have had a somewhat closer relationship with their patients and their patients' families than those who did not.

*Patients and Their Doctors in 1977*⁸

Unlike the study of medicines, patients' assessments of doctors who did and did not respond did not differ about their listening or taking time. Nor did the two groups differ in their assessments of whether they would discuss a personal problem with their doctor. The two groups seemed to be equally satisfied or dissatisfied with their care and equally critical or uncritical of their doctors. If the patients saw their relationship with their doctor as businesslike, the doctor was more likely to respond than if the patient described it as friendly (70% compared with 60%). Perhaps the businesslike doctors are more systematic.

Discussion

On the whole the comparisons between the professionals who participated in our studies and those who did not are reassuring because they do not indicate any large bias. The same conclusion was reached in an American study of physicians who did and did not respond to a postal questionnaire,¹² even though the response rates in our studies sometimes dropped to a level that they would regard as unacceptably low. In practice the extent of the biases did not seem to be strongly related to the response rate: the number and direction of identified biases was at least as great in the study of terminal care, in which the response rate was 79%, as in the study of medicines, in which it was 56%.

Probably the most worrying finding is the drop in response from doctors over time. One possible explanation may be an increasing apathy or antagonism towards health-service research associated with government. This would be ironic, since the aim of much research is to ensure that bureaucrats are aware of the views of the people concerned. Alternatively, doctors may have become the targets for an increasing number of studies, and some may have responded by rejecting all such appeals, others by responding selectively to those that they find particularly interesting, and others by demanding the type of reward that is sometimes offered by pharmaceutical firms when they do such studies. Some evidence suggested that certain subjects were seen

as more threatening than others, and also that some topics appealed to certain types of doctors. Health visitors, midwives, and district nurses, on the other hand, seem to be asked about their professional views and experiences relatively infrequently. Several of them said that they were glad that we were taking notice of their point of view, and this feeling, together with their inclination to accept what their seniors had approved, probably contributed to their relatively high rate of response.

The direction of the biases that were identified among the non-responding doctors suggested that they were older, more isolated, less well-qualified, and rather less likely to be regarded as helpful and sympathetic by their patients. They also seemed to have a less positive attitude to research.

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What is the nature of the blood-brain barrier?

It has been known for many years that there are substances that penetrate into the central nervous system either very slowly, or not at all, but which readily enter other tissues. The exact site of this blood-brain barrier is still debated, but is probably due to the tight junctions between endothelial cells of brain capillaries. The passage of substances across the blood-brain barrier is largely determined by their facility to cross (and therefore dissolve in) the lipid membranes of the surrounding endothelial cells. Lipid-soluble drugs therefore penetrate into the central nervous system very readily, while most lipid insoluble ones do not. Few substances (such as levodopa), however, cross by active transport. In meningitis, encephalitis, and uraemia there is some degree of "breakdown" of the blood-brain barrier, which allows penicillin to cross into the central nervous system.

Correction**Brucellosis**

In the Any Question? on brucellae and *Mycobacterium tuberculosis* (4 November, p 1281) the co-trimoxazole dosage should have been given as 10 and 50 mg/kg daily.