

# The Telephone Survey in Family Practice

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Patient surveys can be useful methods of obtaining information for the purposes of improving health services, practice management, or research in family medicine. The telephone interview is an effective and economical method of undertaking such a survey. The advantages and disadvantages of the telephone survey method are briefly illustrated by a study conducted in the Family Practice Center at the University of North Carolina concerning patient perspectives on their after-hours medical encounters with physicians.

Survey methods have been used extensively over the past 30 years in health services research, consumer marketing, and opinion polls.<sup>1</sup> The survey has become an accepted investigative technique in family practice, used mainly for gathering information on the educational aspects of the discipline, and less often for clinical studies.<sup>2,3</sup> It is economical both in time and cost and has proved particularly effective with large or heterogeneous groups of respondents.<sup>4</sup>

In general, the survey in health care has been directed toward obtaining information about behavior and/or attitudes, often with a strong consumer orientation.<sup>5</sup> Most health care surveys have been concerned with such topics as health care planning and delivery, patient attitudes toward providers, and cultural and social beliefs about health and disease. More recently, researchers in family medicine have used the survey method to investigate physician attitudes toward their work and to obtain educational feedback from patients.<sup>6,7</sup>

The aim of this paper is to demonstrate the usefulness of the telephone interview as a survey method particularly well suited to research in family medicine. Guidelines are presented to assist the implementation of such a survey using, as an

example, a study undertaken over the past four years at the Family Practice Center at the University of North Carolina at Chapel Hill.

## The Telephone Survey Option

In the past, face-to-face interviews have been conducted either in the home or in the practice setting. This is costly and frequently inconvenient. One alternative method is the self-administered questionnaire (SAQ) which is more economical, but leads to bias on grounds of illiteracy and low return rates among respondents with poor education.<sup>8</sup> Telephone administered questionnaires (TAQ) may also have biases of which the major postulated problems are the omission of households from the sample, or unlisted numbers.<sup>9</sup> The major question is whether the TAQ produces information that is as accurate and representative as the self-administered questionnaire or the face-to-face interview. There is evidence from several studies comparing the three survey methods, investigating the topics of crime, health, and incomes, that the telephone administered questionnaire is as effective as the face-to-face interview and may, in fact, lead to even more valid data.<sup>9-11</sup> The advantages and disadvantages of the telephone

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Table 1. The Telephone Administered Survey	
Advantages*	Disadvantages*
More economic by 50%	Respondent inaccessibility (ie, unlisted telephones)
Flexible interview scheduling	Communication difficulty may occur
Low refusal rate	Nonverbal cues unavailable
Fewer interruptions	Data liable to distortion by respondent
More likely to get "truthful" answers	Interview must be short (10-20 minutes)
Less bias from personal interaction	
Answers less likely to be socially "desirable"	
*Relative to the self-administered questionnaire (SAQ) and the face-to-face interview	

administered questionnaire are shown in Table 1. Mail and telephone questionnaires are more likely than face-to-face interviews to elicit truthful answers to sensitive or socially undesirable questions; on the other hand, the respondent may exaggerate answers more readily on the telephone.

Most criticisms of telephone surveys have been directed toward problems of sampling representative households. Representative sampling requires that all the population should have telephones. In the last 20 years the telephone has become almost universal among the population.<sup>12</sup> In 1970, 87 percent of all households in the United States had a telephone and were representative of the demographic profile of the country. Socioeconomic differences between telephone and nontelephone homes had all but disappeared in 1976.<sup>12</sup>

Another criticism of the telephone administered questionnaire is aimed at the proportion of unlisted numbers which are unable to be identified in the interview sample. Glasser and Metzger found this to be 19 percent in four national surveys which were directed mainly to the middle income white population.<sup>13</sup> In addition to the problem of unlisted telephone numbers, the interview refusal rates have also been high in some studies, ranging from 20 to 50 percent.<sup>14</sup> These two problems of inaccessibility are minimized in the family practice setting. First, the patients and families are enrolled with the family practice center, so that telephone numbers are usually known, even if unlisted. Secondly, because demographic data and household structure are commonly available through billing and information systems, a representative sample is easily

selected. Nonresponse rates are likely to be low, for the surveys tend to be directed to the consumer's own interests. However, other biases may be introduced since the respondents will usually identify or associate the interviewers, in some way, with the family practice center. These may include a fear of upsetting the physician, anxiety about the effects of negative answers, and the obedient subject phenomenon.

### Guidelines for Telephone Survey

Keller and Podell have summarized the methods of sample and instrument selection and have commented on questionnaire design, nonresponse rates, and data processing in surveys appropriate to family practice.<sup>2</sup> However, it is not the purpose of this paper to review questionnaire design for telephone surveys; rather, comments will be restricted to the aspects of instituting the telephone survey in the family practice setting. It is hoped that this will assist others who intend to undertake such a survey. Simple telephone interviewing guidelines are shown in Table 2.

### Sources of Error and Bias During the Interview

There are several sources of error during any interview process.<sup>4</sup> These can be confined to three areas: the predispositions of the respondent, the

**Table 2. Telephone Survey Guidelines**

1. Choose a viable respondent selection/elimination process
2. Keep a roster of interview attempts
3. Call within a short time period if the study has a clinical basis
4. Train all the interviewers to use consistent methods and style
5. Decide as an interviewer group how to handle respondents' questions
6. Produce a questionnaire that is easy to read and use
7. Avoid ambiguous or complex questions
8. Interview days *and* evenings to obtain a better response rate
9. Ask the physician for guidelines regarding sensitive cases
10. Gain the respondent's trust in the opening statements
11. Encourage respondents to express opinions
12. Establish a good interviewing pace which does not rush the respondent
13. If the patient is very anxious to discuss a problem rather than respond to the interview question, it may be necessary to take the role of helper or listener and delay the interview
14. Be sympathetic but do not take sides with the patient or the physician
15. Do not attempt to give medical advice or answer medical questions
16. Do not insist on continuing the interview with a reluctant respondent, but attempt to discover the cause of the reluctance
17. Interview respondents at their convenience
18. Reassure and thank respondents
19. Avoid an impersonal, brusque, or impatient interviewing style

predispositions of the interviewer, and the study procedures.

The respondent's responses to the interviewer may be biased by the language skills of either person, the degree of knowledge of the topic of the interview, and/or a variable degree of motivation to respond. Motivation can be influenced by a host of temporal and attitudinal factors. The interviewer's predispositions may include his or her attitudes toward people, attitudes toward the survey, inability to establish rapport with the respondent, and/or preconceived expectations of interview responses.

Although the respondent's biases may not be easily identified or controlled, those of the interviewer can be modified by training. The results of an interview can be influenced by the way the interviewer introduces the survey, by discussion of sponsorship of the study, the wording of questions, by the choices of answers allowed, and by the order of questions. Another difficult problem may be the degree of validity and reliability of the answers in an interview. Although an answer may be reliable (ie, always the same if repeated), it may not be valid or relevant. Some factors affecting answers from respondents include the "social de-

sirability" of the answer, deferential or acquiescent respondent behavior (yea-sayers), the language used, and the form of the question. Open ended questions are more likely to promote interview bias, yet fixed alternative answers may exclude shades of meaning important to the patient.

There is no accurate description of a good interviewer, but certain criteria exist in terms of the quality of the interview response, including the contact rate, interview completion rate, question completion rate, and clerical error rate. It has not been shown conclusively that matching interviewers with respondents for race, age, or sex increases validity and reliability except in asking questions related to race and/or crime.<sup>4</sup>

### *Preinterview Preparation*

It is imperative that the interviewers discuss and review the survey, pretesting the questions and interview process on persons similar to the sample population. The printed questionnaire should be easy to handle and read, allowing the

interviewer freedom to turn the pages while on the telephone. A telephone headset may be helpful to free both hands. The questions should avoid ambiguity and should be as simple as possible so that the respondent has no difficulty in hearing, remembering, or understanding what is being asked. Interviewers should, when possible, assist in making necessary changes in design or technique. Both as individuals and as a group, the interviewers should try to remain neutral, unbiased, non-judgmental, and consistent with each other. Role playing and mock interviews using a tape recorder and/or an experienced supervisor are helpful in training the interviewers.

If the respondent does not understand a question, the interviewers should agree on whether the question should be repeated, explained further, or discarded. If questions with fixed response options are used, the interviewers should avoid explanations or interpretations that might bias the response. The following are examples of these types of questions in which only one response is expected per question\*:

Now I'm going to say some things about doctors in general, not just the doctors you have seen in family practice. I want you to tell me whether you agree, disagree, have mixed feelings, or no opinion about these statements. Remember, these statements are about doctors in general, not just the ones you have seen in family practice.

Most doctors are willing to treat patients with low incomes.

- agree = 1
- mixed feelings = 2
- disagree = 3
- no opinion = 4
- IU\*\* = 5

\*These items were drawn from a larger scale developed and tested by Hulka, Zyzanski, Cassel, and Thompson of the Department of Epidemiology, School of Public Health, University of North Carolina at Chapel Hill, in their 1969 survey of low income residents of Raleigh, North Carolina.<sup>15,16</sup>

\*\*Information unavailable

Doctors won't admit it when they don't know what is wrong.

- agree = 1
- mixed feelings = 2
- disagree = 3
- no opinion = 4
- IU = 5

It is hard to get a quick appointment to see a doctor.

- agree = 1
- mixed feelings = 2
- disagree = 3
- no opinion = 4
- IU = 5

Doctors will do everything they can to keep from making a mistake.

- agree = 1
- mixed feelings = 2
- disagree = 3
- no opinion = 4
- IU = 5

### Starting the Interview

In order to achieve a successful interview rate and to create an atmosphere in which people feel free to address themselves to the questionnaire, timing is an important consideration. In the initial encounter, the interviewer should indicate the length of time the interview will take and should give the respondent the opportunity to answer the survey at a convenient time. Thus, if the time of the first telephone contact is not suitable, a future telephone appointment may be set up. Women are still more likely to be at home during the daytime than men, so that calls made only during daytime hours will produce a biased response rate. Evening interviews may be necessary to correct for this likelihood.

Two important points to establish in the opening remarks of the survey are the confidentiality of the questionnaire and the respondent's right not to answer any question. There should also be a brief statement about the educational value and purpose of the interview. The interviewer should be well prepared to answer any questions that may arise. Informed consent must be obtained from the respondent, preferably at the beginning of the interview.

### The Body of the Interview

Respondents or patients are usually most eager to discuss their experiences and it is often useful to

start with questions dealing with the what, where, why, when, and how of the topic under discussion. This will stimulate the respondent's interest and lead into the next phase dealing with attitudes and questions about more abstract items, such as health behavior and perspectives. The demographic data are covered last of all since the respondent is not likely, at this stage, to terminate the interview. Starting an interview by asking demographic questions is often regarded as boring and an invasion of privacy.

### *Closing the Interview*

In order to procure patient feedback about medical services or procedures or about the survey itself, it is important to include open ended questions. This type of question is useful to ask at the end of the survey for several reasons. After the interviewer has gained the trust of the respondent, the latter should be willing to answer subjective questions more fully and honestly, and may also find that there are questions or comments that he/she would like to contribute.

The closing section of the interview may also be used for patient education if this is part of the overall design. The person conducting the survey should be able to clarify misunderstandings regarding medical services or procedures, or to refer the patient to an appropriate source of information.

### **A Family Practice Survey—Illustrative Example**

At the Family Practice Center, Department of Family Medicine of the University of North Carolina at Chapel Hill, three part-time research assistants were hired to interview a sample of all those patients who had telephoned the center after regular office hours. The following section reports the experience of interviewing these patients by telephone during a five-month period, November 1979 through March 1980.

A total of 946 after-hours medical contacts were recorded during this period. From these encounters, 283 (30 percent) full interviews were completed with 15 refusals. All after-hours patients could not be interviewed for several reasons: some people called in more than once; others gave the

physician telephone numbers which were subsequently out of order, disconnected, or were not their home phone numbers; during the holiday season people were often unavailable or out of town.

At the outset, all those who had already been interviewed during the previous six months were eliminated. A roster was maintained to prevent repeated calling of the same patients. The assumption was made that people might be unwilling to cooperate if they were "over-interviewed." Also, on the front page of each interview, a record was kept of the attempts made to contact the person and any other information that would be helpful for one of the other research assistants.

An equally important determinant was the interval of time allowed between the patient's actual medical encounter and the date of the interview. If more than one week elapsed, people would have had difficulty remembering enough details about the encounter for the interview to be of value. Anyone that could not be reached within one week was eliminated. Also, consideration was given to those patients who may have been too ill or uncomfortable to respond to the survey. If the patient was not allowed enough time to recuperate from the illness or injury, not only would he be unready to discuss the merits of the treatment but he might also resent a call at such a time. Thus an optimal time to try to reach people was between two to seven days after their after-hours encounters.

One or two patients were eliminated from the survey due to the sensitive nature of their problems, such as severe social dysfunction, abortion, or death in the family. The physician familiar with the patient and the interviewing research assistant made this decision in those instances when an interview might be upsetting or embarrassing to the patient. If the interviewer became aware of previously undetected medical problems or the possible need for intervention, the matter was discussed with the project director (a faculty physician). If appropriate, and with the patient's consent, this was communicated to the patient's physician.

Since this survey was designed partly to determine the effectiveness of "telephone medicine" by on-call physicians, it was important to speak to the person who had actually had the encounter with the physician. This person was not necessarily the patient since often a spouse or parent called

in. This meant that the respondent was already "known" to the family practice center and was not part of an anonymous sample. In addition, the interviewer had an affiliation with the Department of Family Medicine (though not the Family Practice Center). Both of these factors were bound to introduce some bias into the results of the survey particularly in the areas of satisfaction or attitudes to care. It was important during the interview to clarify the interviewer's lack of involvement in the functioning of the family practice center. Ideally the interview should have been undertaken by someone with no relationship with family medicine.

Even though the interview was not conducted face-to-face, the interviewers felt that they were able to develop a good relationship with the respondents. The telephone had the advantage of masking possible embarrassment or reluctance, which may be a problem with the personal interview. Respondents' initial reactions to participating in the survey varied; some were defensive about their after-hours calls, some were apologetic, and others were curious about the nature of the study. The majority was pleased to be given the opportunity to provide input into the family practice center and to assist in the education of the physician.

## Conclusion

Unless supported by extensive funds, planning, and manpower, most surveys do not approach the ideal in terms of sampling, reliability, validity, quantitativeness, and generalizability. The weaknesses of the family practice survey described in this paper lie in the bias produced by using "affiliated" interviewers and in difficulties of validating certain questions in the survey instrument. In addition, the sampling could not be designed prospectively and therefore ran the risk of being unrepresentative of the total "after hours" population. A pilot survey, however, was found to be representative in several characteristics and this supported the continuation of the study. The strengths of the survey were found to be the effectiveness of telephone interviewing for response and completion rates, the flexibility of implementing the survey method, and the value of the data emanating from the open-ended questions dealing

with the adequacy of the services provided by the family practice center.

The authors feel that the telephone survey is an economical, flexible, and effective instrument for collecting data in family practice, suitable for use both in private practice and residency training programs.

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